Vol. 906 Number 1

OFFICIAL GAZETTE

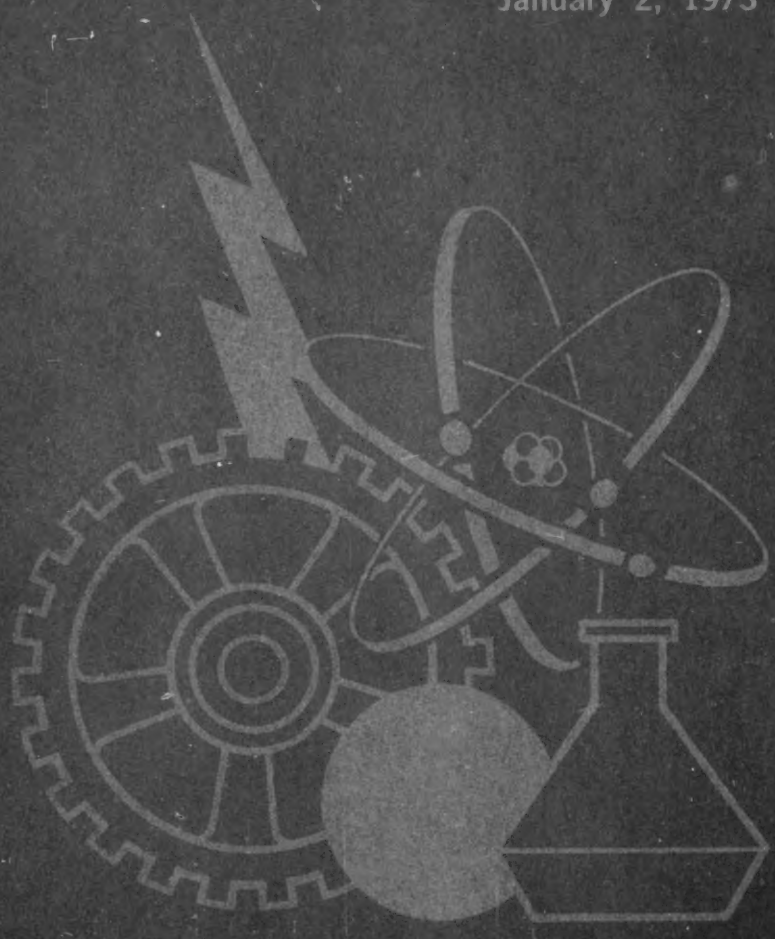
of the

UNITED STATES PATENT OFFICE

A UNITED STATES DEPARTMENT OF COMMERCE PUBLICATION

PATENTS

January 2, 1973



U.S. DEPARTMENT OF COMMERCE

Patent Office

PUBLISHED WEEKLY BY AUTHORITY OF CONGRESS

OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE

January 2, 1973 Volume 906 Number 1

CONTENTS

	Page
Patents and Trademark Notices	
Consolidated Listing of Recent Official Gazette Notices re Patent Office Practices and Procedures	3
Board of Appeals Decisions Rendered in the Month of November 1972	91
Patent Suits	91
Patent Notices	
Certificates of Correction for the Week of January 2, 1973	93
Disclaimers	93
Dedications	93
Errata	93
Condition of Patent Applications	95
Plant Patents Granted	96
Patents Granted	
General and Mechanical	97
Chemical	231
Electrical	295
Design Patents Granted	346
Index of Patentees	PI 1
Indices of Plants and Designs	PI 35
Classification of	
Patents	PI 37
Designs and Plants	PI 39
Geographical Index of Residence of Inventors	
Patents	PI 40
Designs and Plants	PI 42

The following are mailed under direction of the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402, to whom all subscriptions should be made payable and all communications addressed:

THE OFFICIAL GAZETTE (PATENTS SECTION), issued weekly, subscription $89.00 per annum, foreign mailing $22.25 additional; single copies $2.00 each.

THE OFFICIAL GAZETTE (TRADEMARK SECTION), issued weekly, subscription $17.00 per annum, foreign mailing $4.25 additional; single copies 40 cents each.

CIRCULARS OF GENERAL INFORMATION concerning PATENTS or TRADEMARKS, price 15 cents each.

PRINTED COPIES OF PATENTS are furnished by the Patent Office at 50 cents each; PLANT PATENTS in color, $1.00 each; copies of TRADEMARKS and DESIGN PATENTS at 20 cents each. Address orders to the Commissioner of Patents, Washington, D.C., 20231.

Printing authorized by Section 11(a)3 of Title 35, U.S. Code P.O.

CONSOLIDATED LISTING OF RECENT OFFICIAL GAZETTE NOTICES RE PATENT OFFICE PRACTICES AND PROCEDURES

PATENT SECTION

The following is a compilation of the more important notices and rules changes which have been published in the OFFICIAL GAZETTE *from July 1, 1964, through December 31, 1972. These notices and rules changes are currently in effect and are published as a part of our "Better Service to the Public" program.*

CONTENTS

PATENT SECTION	*Items*
Information and Correspondence	1– 34
Records and Files	35– 42
Fees and Payment of Money	43– 54
Powers of Attorney	55– 59
Application Content	60– 71
Priority Applications	72– 79
Drawings	80– 84
Examination of Applications	85–120
Amendments	121–123
Interviews	124–125
Joinder	126–135
Time for Response	136–140
Appeals	141–155
Interferences	156–161
Correction of Errors	162–164
Abstracts	165–170
References	171–180
Postal Service Emergency	181–185
Miscellaneous	186–212
TRADEMARK SECTION	
Trademark Notices and Rule Changes	300–334
Repeated Patent Notices Also Pertinent to Trademarks	5, 11, 22, 26, 27, 35, 43, 45, 46, 48, 181–185, 195, 212

INFORMATION AND CORRESPONDENCE

(1) INFORMATION RE APPLICATION STATUS

In view of the relatively long pendency of patent applications at the present time, the final disposition of which may, in some cases, be of substantial importance to the public in general or, at least, to persons other than the applicants, it has been decided effective immediately to advise any person who makes written request for information as to the status of a United States application referred to by number in a foreign patent, which patent is identified in the request, whether the application is pending, abandoned or patented and, if patented, what the patent number is. The former practice of giving similar information with respect to an application referred to by number in a United States patent (Manual of Patent Examining Procedure, section 102) will be continued.

EDWARD J. BRENNER,
Dec. 11, 1964. *Commissioner of Patents.*

[809 O.G. 1293]

(2) TELEPHONE NUMBERS ON OFFICE ACTIONS

Effective immediately, the full surname of the Examiner who prepares the Office action will, in all cases, be typed below the action on the left side. The Examiner's telephone number will be typed below his name. This number should be called if the case is to be discussed or an interview arranged.

The Notice of December 10, 1964, 810 O.G. 308, and Change Notice 2–15 are rescinded.

RICHARD A. WAHL,
Apr. 5, 1965. *Superintendent, Patent Examining Corps.*

[813 O.G. 1099]

(3) EXPEDITING PAPERS RELATING TO APPEALS

In order to expedite the handling and processing of all papers relating to appeals, it is essential that all such documents include the Group Number to which the application is assigned, as well as the Appeal Number and Serial Number.

EDWIN L. REYNOLDS,
May 8, 1965. *First Assistant Commissioner.*

[815 O.G. 417]

(4) TELEPHONE NUMBERS ON AMENDMENTS AND OTHER PAPERS

In view of the increased use of telephone interviews regarding matter which can be readily cleared up by a telephone call to applicant or his representative, it is again recommended that amendments and other papers, such as letters of transmittal, include the complete telephone number with area code and extension, preferably near the signature of the writer.

RICHARD A. WAHL,
Mar. 11, 1966. *Assistant Commissioner.*

[825 O.G. 1]

(5) ZIP CODE REMINDER

By Executive Memorandum of June 18, 1965, President Johnson directed all Federal Agencies to take the lead in adopting the ZIP Code system and instructed the Postmaster General to issue regulations governing the use of ZIP Codes by such agencies.

Pursuant to this directive, Section 137.26 has been added to the Postal Manual requiring compliance by Federal Agencies as follows:

1. Effective January 1, 1966, official mailings containing typed or handwritten addresses must include the ZIP Code.
2. Effective January 1, 1967, all Federal Agencies must use the ZIP Code in the addresses on *all* official mail and are required to presort quantity mailings by ZIP code.

TO THIS END, ALL FUTURE LETTERS, COUPONS, AND OTHER PAPERS BEARING THE SENDER'S ADDRESS WHICH ARE MAILED TO THE PATENT OFFICE MUST SHOW THE ZIP CODE DESIGNATION OF BOTH THE SENDER AND THE PATENT OFFICE.

The Patent Office ZIP Code is 20231. This designation should be used when writing to the Patent Office for any matter. In addition, the sender's own ZIP Code designation should be given. The benefits to be gained by the immediate use of ZIP Code are many: positive identification of areas; faster delivery of mail by reducing the number of handlings from point of origin to destination; and easier identification of post office address.

C. A. KALK,
Mar. 22, 1966. *Director of Administration.*

[825 O.G. 428]

(6) HAND DELIVERY OF DUPLICATE COPY OF PAPERS BY ATTORNEY

The Notice appearing in 833 O.G. 1 is hereby superseded. The practice set out in the above notice is extended as follows:

In further implementation of the Notice in 829 O.G. 1755 concerning discontinuation of the practice of hand delivery by attorneys or others of officially date stamped papers, it is directed that prompt consideration and appropriate action be taken on the hand-delivered duplicate copy of such papers, which may include amendments, powers to inspect, requests for extension of time, etc.

The effect of such consideration and action should be communicated to applicant or his representative at the earliest practicable time to clarify the status of the case.

If requested, at the conclusion of an interview, it would be appropriate to indicate on the attorney's copy and the Office

duplicate copy any agreement reached and to initial and date both copies.

Actual clerical entry of amendatory matter usually will require the presence in the file of the original paper; however, pending receipt of the original, examiner and clerical processing of the application should proceed, based on the duplicate copy, as far as practicable in the circumstances of each case.

RICHARD A. WAHL,
Dec. 21, 1966. *Assistant Commissioner.*

[834 O.G. 829]

(7) ATTACHMENTS TO OFFICE ACTIONS

To expedite the preparation and mailing of certain Office actions, the following changes in practice are effective July 1, 1967:

Where references are furnished, applicant's copies of the Office action will be camera reproductions of the ribbon copy instead of the usual carbon copies. The list of reference citations, heretofore typed directly on the action, will be on a separate form, Notice of References Cited, PO–892, attached to applicant's copies of the action.

The manner of furnishing copies of the references remains unchanged.

About Aug. 1, 1967, the use of attachments to the Office action will be extended to include notification of informalities in the application and drawings. Where applicable, Notice of Informal Patent Drawings, PO–948, and Notice of Informal Patent Applications, PO–152 (rev.) will be attached to the first action.

The attachments will bear the same paper number and are to be considered as part of the action.

Replies to Office actions should include the 3-digit Art Unit number to expedite handling within the Office.

RICHARD A. WAHL,
June 29, 1967. *Assistant Commissioner.*

[840 O.G. 711]

APPENDIX A

(8) PUBLIC INFORMATION APPENDIX—PATENT OFFICE

A. *Purpose.*

The purpose of this Appendix is to describe, in general, the public information services of the Patent Office, to describe the places at which and the methods whereby the public may obtain information, make submissions or requests or obtain decisions, to inform the public as to the sources or availability of rules, regulations, procedures, forms, instructions, or other requirements of the Patent Office, which affect the public, and otherwise to comply with the requirements of Section 552 of Title 5, U.S.C. as amended by Public Law 90–23, June 5, 1967 (81 Stat. 54).

B. *Public Information Services.*

(1) The Patent Office provides the public with a wide range of information relating to the organization, structure, description, and functions of the Patent Office. This includes material published regularly on a weekly basis, such as the OFFICIAL GAZETTE, and copies of the patents and trademark registrations identified therein. General information concerning the procedures for obtaining patents or registering trademarks, and for utilizing the search rooms and Scientific Library of the Patent Office is readily available.

(2) Publications of the Patent Office are listed in the catalog of publications sold by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402. They are also listed in the Introduction of the "Rules of Practice of the United States Patent Office in Patent Cases," and in the pamphlet "General Information Concerning Patents." The Patent Office also publishes a circular "Patent Office Publications," which lists the available publications, and provides information as to price and source. These publications include:

a. Annual Index of Patents.
b. Decisions of the Commissioner of Patents.
c. Manual of Patent Classification, and Classification bulletins.
d. Patent Laws (pamphlet edition).
e. Directory of Registered Patent Attorneys and Agents Arranged by States and Cities.
f. Guide for Patent Draftsmen.

(3) The Patent Office has an Office of Information Services where the public may obtain a list of current publications and general information concerning the functions and services of the Patent Office. Information relating to patents may be obtained from the Patent Reference Branch of the Office of Patent Services, and information relating to trademarks may be obtained from the search room of the Trademark Examining Operation.

C. *Guide to Published Rules and Regulations.*

(1) Patent Office rules of procedure, descriptions of forms, substantive rules of general applicability, and statements of general policy are published in the Federal Register. Rules are currently codified in Title 37, Chapter I, Code of Federal Regulations, and are also available in pamphlet form entitled "Rules of Practice of the United States Patent Office in Patent Cases" and "Trademark Rules of Practice of the Patent Office with Forms and Statutes," each of which is for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402.

(2) The Patent Office maintains also an administrative staff manual, entitled "Manual of Patent Examining Procedure," and an index thereto, for the general guidance of its staff and the public. The manual, with its index, as amended, changed, and supplemented from time to time, is available in the Patent Office (the Public Search Room and Library) for inspection and copying, and copies are for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402.

D. *Submission of Requests and Applications.*

The established places at which and the methods whereby the public may make requests concerning Patent Office functions, operations, and procedures are listed in Sections B and C of this Appendix.

E. (*Reserved*).

F. *Inspection and Copying of Opinions and Orders.*

(1) Final opinions and orders in the adjudication of patent cases, statements of policy and interpretations, and other material required to be made available for public inspection and copying under 5 U.S.C. 552(a)(2) are made available for such purposes in the search room of the Patent Reference Branch in the Main Commerce Building, 14th Street between Pennsylvania Avenue and Constitution Avenue, NW., Washington, D.C., 20231, readily accessible from the entrance on E Street near 14th Street. Instructions concerning the use of this facility are contained in the introductory portion to the pamphlet edition of the Rules of Practice in Patent Cases, and the pamphlet "General Information Concerning Patents."

(2) Final opinions and orders in the adjudication of trademark cases, statements of policy and interpretations, and other material required to be made available for public inspection and copying under 5 U.S.C. 552(a)(2) are made available for such purposes in the search room of the Trademark Examining operation in the Longfellow Building, 1741 Rhode Island Avenue, NW., Washington, D.C., 20231, from 8:00 a.m. to 6:00 p.m. on workdays only. Instructions concerning trademark operations are contained in the pamphlet "General Information Concerning Trademarks."

G. *Inspection of Bureau Records.*

(1) Applications for patents are required by law to be kept in confidence by the Patent Office and no information concerning such applications may be divulged by the Patent office without authority of the applicant or owner, unless necessary to carry out the provisions of any Act of Congress or in such special circumstances as may be determined by the Commissioner (35 U.S.C. 122).

(2) Special situations are recognized by the regulations (37 C.F.R. 1.11 and 1.14; Manual of Patent Examining Procedure, section 103), which prescribe the procedures to be followed in the opening of certain patent applications to inspection.

(3) Assignment records, digests, and indexes (37 C.F.R. 1.12) relating to patent applications are not available to the public.

(4) Pending trademark applications are not open to general inspection (37 C.F.R. 2.27).

(5) The procedures for requesting records not disclosed to the public as part of the regular informational activities of the Patent Office, or not included in the material described in Section F, supra, or whose disclosure is not provided for or

precluded by the regulations cited in paragraphs (1), (2), (3) and (4) of this section, are prescribed in 37 C.F.R. 1.15.

EDWARD J. BRENNER,
Date: Sept. 12, 1967. *Commissioner of Patents.*

Published in 32 F.R. 13830, Oct. 4, 1967

[843 O.G. 1567]

(9) POST CARD RECEIPT REMINDER

Applicants and their attorneys or agents are reminded of the provision in Section 717.01(a) of the Manual of Patent Examining Procedure relating to the use of post cards as "receipts" of papers filed in the Patent Office.

If a receipt for any paper filed in the Patent Office is desired, it may be had by enclosing with the paper a self-addressed post card identifying the paper. The Patent Office will stamp the receipt date on the card and place it in the outgoing mail.

The identifying data on the card should be so complete as to match the paper with the application or other document to which it is to be associated. For example, the document should be identified by the applicant's name(s), Serial No., filing date, appeal number, interference number, etc., and the paper should be identified by specifying the type thereof, viz, affidavit, amendment, appeal, application papers, brief, drawings, fees, motions, supplemental oath or declaration, petition, etc.

When papers for more than one document are filed under a single cover a return post card should be attached to the paper for *each* document for which a receipt is desired.

RICHARD A. WAHL,
Nov. 21, 1968. *Assistant Commissioner.*

[857 O.G. 667]

(10) OFFICE ACTION—FIRST PAGE FORM

The printed form POL–326 formerly used as the first page of the first Office action, 845 O.G. 1205, has been revised.

The new form is now being attached to all Office actions up to and including final rejections.

RICHARD A. WAHL,
Jan. 22, 1969. *Assistant Commissioner.*

[859 O.G. 677]

(11) OFFICIAL PATENT OFFICE MAILING ADDRESS REMAINS WASHINGTON, D.C.

The official mailing address for all communications sent to the Patent Office remains:

Commissioner of Patents
Washington, D.C. 20231

Any telegrams sent to the Patent Office must also bear the above identical address.

The physical location of the Patent Office is 2021 Jefferson Davis Highway, Arlington, Virginia. This address must not be used when addressing mail to the Patent Office.

No reference to Crystal Plaza, Virginia, should be made in the address of *any* communication intended for delivery to the Patent Office by the Post Office Department or Western Union.

Compliance with this instruction will help prevent any unnecessary delay in the delivery of mail, telegrams, etc.

C. A. KALK,
Feb. 20, 1969. *Director of Administration.*

[860 O.G. 662]

(12) DIRECTORY OF REGISTERED PATANT ATTORNEYS AND AGENTS

The Patent Office has recently published a new edition of the Directory of Registered Patent Attorneys and Agents Arranged by States and Countries. The new edition shows the addresses furnished to the Committee on Enrollment as of December 1968, of all attorneys, agents, and firms registered to practice before the Patent Office in patent cases. An added feature in the present edition is the use of a symbol to denote those registrants who are registered as patent agents.

The publication is on sale by the Superintendent of Documents, United States Government Printing Office, Washington, D.C., 20402, for $1.50.

EDWIN L. REYNOLDS,
July 25, 1969. *Chairman, Committee on Enrollment.*

[865 O.G. 663]

(13) ORDERS FOR COPIES OF FOREIGN PATENTS AND/OR PUBLISHED APPLICATIONS

Some foreign countries are not publishing their patents and/or applications in numerical order. Since the U.S. Patent Office will begin supplying orders for copies of these foreign documents from master microfilm reels made up on weekly or other periodic publishing sequences, effective immediately all orders must include the country, patent or application number, and the publication date (if known) of the ordered document. Reference should be made to Section 901 05(a) of the Manual of Patent Examining Procedure to assist in determining the publication date of the commonly encountered foreign patents and applications.

W. R. ARMSTRONG,
Aug. 21, 1969. *Director, Office of Patent Services.*

[866 O.G. 685]

(14) GROUP NUMBER SHOULD APPEAR ON COMMUNICATIONS RELATING TO PENDING APPLICATIONS

It is again requested that the Group number be typed on amendments and other communications relating to pending applications in order to expedite the handling of mail and to conserve manpower. The number of the Group should be placed on the right-hand side, opposite the Serial Number or name of applicant. In view of the vast amount of mail, continued careful attention to these details will do much toward avoiding delay in handling of mail.

C. A. KALK,
Nov. 6, 1969. *Director of Administration.*

[869 O.G. 345]

(15) TRANSMITTAL FORMS

As a convenience to attorneys and to standardize processing, forms have been developed for use in transmitting (1) new applications (PO–1082) and (2) amendments adding claims (PO–1083). These forms were approved by a Notice appearing in the Federal Register, November 26, 1969, and are designated 37 CFR 3.51 and 3.52 (869 OG 1033). Attorneys who desire to use these forms may obtain them without charge from the Correspondence and Mail Branch or the Receptionist in Building 3 in Crystal Plaza.

RICHARD A. WAHL,
Jan. 2, 1970. *Assistant Commissioner.*

[870 O.G. 1040]

(16) MICROFILM: PATENT NUMBER SEQUENCE CLASSIFICATION RECORD

The Patent Office announces a new microfilm publication entitled Patent Number Sequence Classification Record. This official record lists the original and cross-reference classifications together for each patent number, in patent number order. This sequence contrasts with that of the previously announced Cumulative Index to the Classification of Patents which lists patent numbers by classification, in separate files for original and cross-reference classifications.

The Patent Number Sequence Classification Record comprises all patents issued through April 29, 1969. The classification includes all reclassifications made effective through January 1, 1969. This publication, which is available only in microfilm form, includes patents, design patents, reissue design patents, reissue patents, plant patents, defensive publications, and patents issued from 1790 to 1836. Updates to this record will be announced periodically, as circumstances warrant.

The Patent Number Sequence Classification Record comprises 16 reels of 16 mm. roll microfilm which are offered for sale in three different ways. The complete record is catalogued as PB–188600 and sells for $70.00. The 7 reels comprising patents issued from numbers 2,225,518 (issued in 1940) to the end of the file are offered together for those who desire

only more recent patents. This set is catalogued as PB–188617 and sells for $35.00. Reels ordered individually or in sets other than the two mentioned above, sell for $6.00 apiece and should be ordered using the catalogue number for each reel desired, as shown below:

Cat. No.	Patent Nos. Included
PB–188601	1– 276,927
PB–188602	276,928– 539,569
PB–188603	539,570– 797,464
PB–188604	797,465–1,054,425
PB–188605	1,054,426–1,311,703
PB–188606	1,311,704–1,568,108
PB–188607	1,568,109–1,811,776
PB–188608	1,811,777–2,015,447
PB–188609	2,015,448–2,225,517
PB–188610	2,225,518–2,431,496
PB–188611	2,431,497–2,628,945
PB–188612	2,628,946–2,819,182
PB–188613	2,819,183–3,011,059
PB–188614	3,011,060–3,196,127
PB–188615	3,196,128–3,377,086
PB–188616	3,377,087–3,441,959

and Reissue Patents 1–26,557, Design Patents 1–214,007, Plant Patents 1–2,881 and all other categories mentioned in text above.

Orders may be addressed to:

CFSTI
5285 Port Royal Road
Springfield, Virginia 22151

Payment should be made in the form of a check or money order payable to the National Bureau of Standards—CFSTI.

Inquiries, comments or suggestions concerning this record may be directed to the U.S. Patent Office, Office of Organization and Systems Analysis, Washington, D.C. 20231.

E. A. HURD,
Director, Office of Organization and Systems Analysis.

Jan. 15, 1970.

[871 O.G. 2]

(17) HAND DELIVERY OF PAPERS

The notice of November 10, 1969 (869 O.G. 345), regarding Hand Delivery of Papers is modified as indicated below.

The privilege of personal delivery of papers by applicants, their attorneys or agents to the Examining Groups is hereby extended to include any paper which relates to a pending application file. Under this procedure the paper will be date stamped with the Group stamp and made an official paper in the file, thereby avoiding the necessity of processing and forwarding to the Examining Group via the Mail Room. The approval and initials of the examiner will no longer be necessary for delivering papers directly to the Group. In those instances where an additional fee is required, the paper will be date stamped by the clerk, hand carried, together with the check or letter of authorization to charge a Deposit Account, to the Finance Branch for processing and then made an official paper in the file.

This procedure will be re-evaluated after it has been in effect for a period of six months.

RICHARD A. WAHL,
Sept. 8, 1970. *Assistant Commissioner.*

[879 O.G. 667]

(18) OFFICE ACTIONS

Effective December 1, 1970, applicants or their attorney or agent will be provided with one carbon copy of all Office actions, and the provision of additional or other reproductions of the ribbon copy will be discontinued.

Heretofore, the Office has provided one or two copies of the examiner's action, depending upon the nature of the action. The practice of furnishing more than one copy will be discontinued and, effective with the above change, the applicant will be furnished one copy of all examiner actions.

RICHARD A. WAHL,
Oct. 21, 1970. *Assistant Commissioner.*

[880 O.G. 740]

(19) IDENTIFICATION FOR APPLICATION CORRESPONDENCE

The Office is continuing to experience difficulty in matching incoming papers with the corresponding application files. This applies especially to responses to Office Actions, powers of attorney, changes of address, status letters, requests for extensions of time, and petitions.

A very necessary part of a complete identification of a pending application is the three-digit Group or Art Unit number, e.g., 110 or 111. Frequently, the Group Art Unit number is entirely omitted, or there are errors in this number. In the latter situation the error often occurs as a result of the case having been reassigned within the Office, and the communication is directed to an Examining Group other than that indicated in the most recent Office Action.

Where the Group Art Unit number is entirely omitted, the routine operations of the Application Branch must be interrupted solely for the purpose of determining the location of the application so that the communication can be properly routed. Under these circumstances the efficiency of the Application Branch is impaired and the incoming paper is delayed in reaching its proper destination. Where such papers are not essential to compliance with a statutory period or time limit for response, they may be returned for completion to identify the location of the files.

To assist the Office in expediting its business, it is requested that ALL papers relating to a pending application include the following information:

1. Serial number (checked for accuracy),
2. Group Art Unit number (copied from filing receipt or most recent Office Action),
3. Filing date,
4. Name of the Examiner who prepared the most recent Office Action.
5. Title of the invention.

To further reduce the burden on the Application Branch and the Examining Groups, it is also requested that the submission of additional or supplemental papers on a newly filed application be deferred until a filing receipt has been received. In the same vein, it would be appreciated if the filing of additional papers relating to an allowed application were referred until a notice of allowance (POL–85) was received.

If the above suggestions are adopted the processing of both new and allowed applications could proceed more efficiently and promptly through the Patent Office.

RICHARD A. WAHL,
Mar. 5, 1971. *Assistant Commissioner.*

[885 O.G. 2]

(20) NEW DECLARATION FORM

To facilitate electronic data input and to expedite processing of new patent applications, a new declaration form has been devised.

Single copies of the new form are available without charge for direct use or for reproduction purposes and may be picked up from the receptionist in Building No. 3 of the Patent Office at Crystal Plaza. Written requests for the form will be filled only if directed to the Commissioner of Patents, Office of Information Services, Washington, D.C., 20231. A stamped, self-addressed envelope must be enclosed.

RICHARD A. WAHL,
May 28, 1971. *Assistant Commissioner.*

[887 O.G. 1840]

(21) PATENT APPLICATION BRANCH SERVICE

In order to expedite the processing of newly filed applications, improve the efficiency of the Office, and assist in the effort to normally dispose of patent applications within 18 months of their filing date, cooperation from the patent community is solicited with respect to recent procedural modifications.

Prior to examination concerning patentability, patent applications are now examined for compliance with formal requirements, and actions are mailed requiring correction of stated informalities. Many inquiries have arisen concerning the effect of such actions. Since the actions concerning correction of informalities include the setting of a period for response, failure to respond within the period set results in abandonment of the application.

Inquiries directed to the Application Branch, either in person or by telephone, concerning patent applications should not be made during the morning hours between 8:30 and 10:30.

The letter of transmittal accompanying the filing of continuing applications, particularly streamlined continuations and Rule 147 divisionals, should include such additional information as the identification by serial number of the parent application, its status, and location in the Patent Office. The supplying of this information will permit the processing of these new applications more rapidly than at present.

When a new application is filed with a request to transfer drawings under Rule 88, the application papers should include drawing prints to enable the Application Branch to process the case before transfer of the formal drawings is effected.

RICHARD A. WAHL,
June 1, 1971. *Assistant Commissioner.*

[887 O.G. 1841]

---

(22) NEW PROCEDURES FOR PROCESSING ORDERS FOR CERTIFIED COPIES WHEN MATERIAL IS NOT AVAILABLE FOR PHOTOCOPYING

The previous practice of the Document Services Division in handling customer's requests for certified copies of material not yet processed in the Application Division has been to return the order to the customer requesting him to reorder 30 days after receipt of his Official Filing Receipt.

In order to improve this procedure, as of August 2, 1971, all requests for certified copies of material that has not been processed in the Application Division and has not been placed on microfiche are processed in the following manner.

1. Each order is given a control number.
2. The customer is notified as follows:
   a. He will receive an acknowledgment of the receipt of his order.
   b. He will be given the assigned control number for ease of reference in case an inquiry is necessary.
   c. He will be informed that his order will be held in the Document Services Division until the copy can be reproduced from microfiche. No definite time can be given.
3. An Advance Order File has been set up in the Service Unit of the Document Services Division and the microfiche is checked daily.

For further service to its customers, the Document Services Division will furnish the Serial Number and Filing Date of the latest application available on microfiche for publication in the OFFICIAL GAZETTE.

ROBERT J. RISH,
Aug. 2, 1971. *Acting Assistant Commissioner for Administration.*

[890 O.G.301]

---

(23) STATUS INQUIRIES

In an effort to sharply reduce the volume and need for status inquiries, the past policy that diligence must be established by making timely status requests in connection with petitions to revive is hereby discontinued.

When an application has been abandoned for an excessive period before the filing of a petition to revive, an appropriate terminal disclaimer may be required. It should also be recognized that a petition to revive must be accompanied by the proposed response unless it has been previously filed (Rule 137). Also, under Rule 113, "Response to a final rejection or action must include cancellation of, or appeal from the rejection of, each claim so rejected and, if any claim stands allowed, compliance with any requirement or objection as to form."

New Applications

Current examining procedures now provide for the routine mailing from the Examining Groups of Form POL–327 in *every* case of allowance of an application except where an Examiner's Amendment is promptly mailed. Thus, the separate mailing of a Form POL–327 or an Examiner's Amendment in addition to a formal Notice of Allowance (POL–85) in all allowed cases would seem to obviate the need for status inquiries even as a precautionary measure where the applicant may believe his new application may have been passed to issue on the first examination. However, as an exception, a status inquiry would be appropriate where a Notice of Allowance is not received within three months from receipt of either a Form POL–327 or an Examiner's Amendment.

Current examining procedures also aim to minimize the spread in dates among the various examiner dockets of each Art Unit and Group with respect to actions on new applications. Accordingly, the dates of the "oldest new applications" appearing in the OFFICIAL GAZETTE are fairly reliable guides as to the expected time frames of when the Examiners reach the cases for action.

Therefore, it should be rarely necessary to query the status of a new application.

Amended Applications

Amended cases are expected to be taken up by the examiner and an action completed within two months of the amendment date. Accordingly, a status inquiry is not in order after response by the attorney until five or six months have elapsed with no response from the Patent Office. A post card receipt for responses to Office actions, adequately and specifically identifying the papers filed, will be considered *prima facie* proof of receipt of such papers. Where such proof indicates the timely filing of a response, the submission of a copy of the post card with a copy of the response will ordinarily obviate the need for a petition to revive. Proof of receipt of a timely response to a final action will obviate the need for a petition to revive only if the response was in compliance with Rule 113.

In General

It is expected that this new policy will result in sharply reducing the number of status inquiries and permit the time now spent on them to be used in increasing Patent Office efficiency in other more essential areas.

Such status inquiries as may be still necessary may be more expeditiously processed by the Patent Office if each inquiry includes the application Serial Number, filing date, name of the applicant, name of the Examiner who prepared the most recent Office action, and Group Art Unit (taken from the most recent Office communication) in addition to the last known status of the application, and is accompanied by a stamped return-addressed envelope. Telephone inquiries regarding the status of applications should be directed to the group clerical personnel and not to the examiners. Inasmuch as the official records and applications are located in the clerical section of the Examining Groups, the clerical personnel can readily provide status information without consulting the examiners.

Status replies will be made by the Patent Office clerical support force and will only indicate whether the application is awaiting action by the Examiner or the applicant's response to an Office action. In the latter instance the mailing date of the Office action will also be given.

The Notices of Dec. 5, 1969 (869 O.G. 1031) and Sept. 22, 1965 (819 O.G. 444) are hereby superseded.

RICHARD A. WAHL,
Nov. 24, 1971. *Assistant Commissioner of Patents.*

[893 O.G. 810]

---

(24) NEW APPLICATION PROCESSING

Because of the delays in processing newly filed applications and the various problems attendant with those delays, a temporary Parallel Application Branch has been established.

This unit is processing all new applications filed after Oct. 27, 1971, and will be mailing application filing receipts within one month of the application filing date. The regular Application Branch will continue to operate and process the inventory of new applications and papers received through Oct. 27, 1971.

As a result of this arrangement, applicants may receive filing receipts on applications filed after Oct. 27, 1971, prior to receiving filing receipts on applications filed before that date.

The temporary Application Branch will continue operations until the regular Application Branch has disposed of its inventory of unprocessed applications. At that time, approximately Apr. 1, 1972, it is planned to resume all processing of newly filed applications in the regular branch by improved methods designed to keep the flow of applications moving on a current basis.

As previously, all applications received by the Patent Office will be microfilmed for record and reproduction purposes. The temporary operation of two application branches will effectively double the output of processed applications and will place excessive demands on our "in-house" microfilming capabilities. Accordingly, the applications being processed in the regular Application Branch will be microfilmed using facilities outside the Patent Office. As a result, these applications will be unavailable for approximately a two week period while they are being microfilmed. Consequently, the filing of requests for copies of these applications may be somewhat delayed.

However, all application copy requests which are submitted subsequent to two weeks after mailing of the filing receipt will be promptly filled. Copies requested at the time of filing the application will be mailed within two weeks after the mailing of the filing receipt.

All mailed inquiries concerning requests for application copies should be addressed to the:

Commissioner of Patents
Washington, D.C. 20231
Attn: Customer Relations Branch

Telephone and in-person inquiries concerning copy requests should be directed to the Customer Relations Desk (703) 557–2003 which is located adjacent the Public Search Room, Crystal Plaza, 2021 Jefferson Davis Highway, Arlington, Va.

All other inquiries about applications undergoing Application Branch processing should be addressed or directed in the usual manner.

ROBERT GOTTSCHALK,
Nov. 22, 1971. *Acting Commissioner of Patents.*

[893 O.G. 807]

(25) PATENTED FILES SERVICE

Delays have frequently been experienced in receiving files and other papers ordered from the Federal Records Center at Suitland, Md. To provide better service in this respect, the Patent Office has initiated its own pick up and delivery service to and from the storage facility. Customer orders are now normally filled within two days.

Orders for files may be placed at the Attorneys and Record Room Desk, Building 4, Room 1D01. There is no charge for this service.

ROBERT GOTTSCHALK,
Nov. 26, 1971. *Acting Commissioner of Patents.*

[893 O.G. 807]

(26) PUBLIC RECORDS CERTIFICATION DESK

The certification desk, located in Crystal Plaza in the Attorneys and Record Room, Building 4, Room 1D01, provides "on-the-spot" certifying service. This desk handles walk-in requests for certified copies of file wrappers, patented applications, patents, and selected papers from patented application files. The usual fee for this service ($1.00 per certification) may be applied at this location in the form of a paid cash order form, obtainable at the Cashier's Office adjacent the lobby of Building #2.

ROBERT GOTTSCHALK,
Nov. 26, 1971. *Acting Commissioner of Patents.*

[893 O.G. 810]

(27) CUSTOMER RELATIONS CENTER

A Customer Relations Center, located in Crystal Plaza adjacent to the Public Search Room, Building 4, Rooms A102 and A103, has been established to provide a central customer complaint and inquiry service. The Center is staffed with six highly experienced employees who process inquiries concerning copies of U.S. patent documents previously ordered but not received. This Center handles not only walk-in but telephonic, and written requests for assistance as well. In addition to improving customer relations, this service is intended to relieve the primary customer service areas (Patent Copy Sales, Document Services, and Reference Order Branch), and Patent Office officials, or interruptions and irregular demands on their time.

The telephone number for this service is (703) 557–2003.

ROBERT GOTTSCHALK,
Nov. 26, 1971. *Acting Commissioner of Patents.*

[893 O.G. 807]

(28) ACCESS TO PATENT APPLICATION AND INTERFERENCE FILES

In order to insure that access to patent application and interference files is given only to persons who are entitled thereto or who are specially authorized to have access under Rule 14 of the Rules of Practice in Patent Cases, and to insure also that the file record identifies any such specially authorized person who has been given access to a file, the following practice will be observed by all personnel of the Patent Office:

1. Access, as provided for in the Rules of Practice, will be given on *oral request* to any applicant, patentee, assignee, or attorney or agent of record in an application or patent only upon *proof of identity* or upon *recognition* based on personal acquaintance.
2. Where a power of attorney or authorization of agent was given to a registered firm prior to July 2, 1971, access will be given upon oral request as in paragraph 1 above to any registered member or employee of the firm who has signatory power for the firm.
3. Unregistered employees of attorneys or agents, public stenographers, and all other persons not within the provisions of paragraphs 1 and 2 above will be given access only upon presentation of a *written authorization for access* signed by a person specified in paragraph 1 above, which authorization will be entered as a part of the official file.

ROBERT GOTTSCHALK,
Nov. 24, 1971. *Acting Commissioner of Patents.*

[893 O.G. 810]

(29) PATENT OFFICE SERVICES

During recent months we have achieved significant progress in improving various aspects of the operations of the Patent Office, and we are hopeful that this progress will continue. At the same time, it is essential that we consolidate and maintain gains which we have achieved. Unfortunately, it appears that we have not done this in two areas of particular concern to attorneys and others dealing with the Patent Office—(i) filling mail orders for patent copies and (ii) supplying certified copies of patent applications.

Within the past few weeks, criticism by examiners and the public—which I very much appreciate—brought to light these operating deficiencies and also the inadequacy of internal operating information concerning them.

Analysis of these situations in depth was immediately begun, and an all-out remedial program was initiated to eliminate the causes of these difficulties and to improve our services in both of these areas. The purpose of this notice is to confirm to you our awareness of these problems and their importance, to inform you of our efforts to overcome them, and to provide a current report of their status.

Patent Copies

I am pleased to be able to inform you that, as of July 24, 1972, we were back on schedule with respect to the filling of orders for patent copies. These are now being filled within 10 days following receipt of the order in the Patent Office.

Problems of accuracy and quality in the filling of such orders remain, however, and our efforts in this connection have been somewhat handicapped by the pressure to achieve promptness. We fully appreciate the importance of these matters, and have adopted quality control techniques which we will increasingly emphasize to provide necessary improvements.

Certified Copies

Those experiencing difficulty in promptly obtaining certified copies should be aware of the availability in the Patent Office of "on-the-spot" service in this connection, so that this may be utilized in appropriate circumstances.

A notice concerning this service appeared in the OFFICIAL GAZETTE of December 21, 1971 (893 O.G. 810) as follows:

> "The certification desk, located in Crystal Plaza in the Attorneys and Record Room, Building 4, Room 1D01, provides 'on-the-spot' certifying service. This desk handles walk-in requests for certified copies of file wrappers, patented applications, patents, and selected papers from patented application files. The usual fee for this service ($1.00 per certification) may be applied at this location in the form of a paid cash order form, obtainable at the Cashier's Office adjacent the lobby of Building #2."

This service continues to be available to provide immediate service on orders for certified copies of patented files.

However, as concerns orders for certified copies of pending applications, delays are still being experienced with respect to both mail orders and walk-in requests, notwithstanding improvements resulting from our continuing efforts. We anticipate that such delays may continue tc be experienced with respect to orders received during the next 30 days.

We are mindful of the importance of your being able to obtain certified copies promptly, especially where these are essential to obtaining the benefit of original filing dates with respect to patent applications filed abroad. We are determined to make every effort to meet your needs in this respect and, accordingly, are initiating for the duration of the present emergency period a special program as follows:

(1) Effective immediately, and continuing until further notice, a special "Expedited Service" for certified copies will be available through the Customer Relations Branch located adjacent the Public Search Room in the Patent Office. On request for such service, the Customer Relations Branch will locate and withdraw critically needed orders from the normal flow and fill them on a custom basis. This program will include special courier service between the production operations in the main building of the Department of Commerce in Washington and the Patent Office facilities at Crystal Plaza. This special "Expedited Service" may be requested in person, by mail, or by telephone (703–557–2003). No additional charge will be made for such service.

(2) Attorneys and others requesting certified copies are requested

(i) to file their orders, whenever possible, at least two (2) weeks in advance of the date when such copies are required, and

(ii) to specify, when filing such orders, the exact date by which such copies are required.

Compliance will provide us with necessary lead time and also enable us to establish necessary priorities among the orders to be expedited.

(3) Requests for "Expedited Service" should be requested *only* in cases of critical need. Special handling necessarily detracts from our capability to service other orders within a reasonable time, and indiscriminate use of "Expedited Service" would impair our ability to meet the needs of those having critically urgent problems.

It is our hope and expectation that regular service will soon be restored to an acceptable level. A notice terminating this special program will be published when that has been achieved. In the meantime, your cooperation and understanding will be appreciated.

ROBERT GOTTSCHALK,
July 25, 1972. *Commissioner of Patents.*

[901 O.G. 412]

---

(30) EARLIER NOTIFICATION OF SERIAL NUMBERS

Various procedures are being revised in an effort to reduce pre-examination processing time for newly filed patent applications and to implement the new Patent Application Locator and Monitoring System. The first change which has been effected results in the assignment of serial numbers in the Correspondence and Mail Division immediately after mail has been opened.

With the implementation of this new procedure, it is no longer necessary to submit two self-addressed post cards when early notification of the serial number is desired. If a self-addressed post card is submitted with a patent application, that post card will be stamped with both the receipt date and serial number prior to returning it to the addressee.

The identifying data on the post card should include: (1) applicant's name(s); (2) title of invention; (3) number of pages of specification, claims, and sheets of drawing; (4) whether oath or declaration used; and (5) amount and manner of paying the fee.

A return post card should be attached to *each* patent application for which a receipt is desired.

This notice supersedes the notice of March 10, 1971 (884 O.G. 970).

WILLIAM I. MERKIN,
August 9, 1972. *Assistant Commissioner for Administration.*

[902 O.G. 2]

---

(31) NOTICE TO APPLICANTS, ATTORNEYS AND AGENTS RE PRELIMINARY CLASSIFICATION OF PATENT APPLICATIONS

The Patent Office is initiating a program for expediting newly filed applications through pre-examination steps. This program requires your cooperation to attain the desired result—a reduction in processing time.

We are, therefore, asking you to include a preliminary classification on newly filed applications. The preliminary classification, preferably class and subclass designations, should be identified in the upper right-hand corner of the **letter of transmittal accompanying the application papers,** for example, "Proposed class 2, subclass 129."

This program is voluntary and the classification submitted will be accepted as advisory in nature. The final class and subclass assignment remains the responsibility of the Patent Office.

RICHARD A. WAHL,
Aug. 11, 1972. *Acting Commissioner of Patents.*

[902 O.G. 376]

---

(32) PATENT OFFICE SERVICES

ADDENDUM TO OFFICIAL GAZETTE NOTICE OF AUG. 8, 1972 (901 O.G. 412)

We wish to call attention to a situation discovered during our study and analysis of the patent copy service. We found that there has been a lack of effective controls affecting orders for printed copies of patents placed by letter, including cash order, and deposit account order forms.

Effective controls for Patent Office coupon orders have been established.

We are now implementing a similar procedure for orders placed by letter, including cash order, and deposit account order forms. It is possible, however, that a few orders submitted in this way in the last few months have gone astray. Accordingly, if you placed such requests for patent copies prior to July 15, 1972, and have not yet received those copies, we suggest that you submit, to the address given below, a follow-up communication which should identify the original request by date and include the Patent Numbers originally ordered.

Address inquiries to:

Director
Office of Public Services
U.S. Patent Office
Washington, D.C. 20231

ROBERT GOTTSCHALK,
Sept. 7, 1972. *Commissioner of Patents.*

[903 O.G. 368]

---

(33) DISTRIBUTION OF NEW DECLARATION FORM PO–1147 (REVISED)

In a recent issue of the OFFICIAL GAZETTE (898 O.G. 738) we announced the availability of a new Sole-Joint Declaration Form, PO–1147. The distribution was limited to single copies of the form. We are pleased to report that use of the

form has resulted in increased efficiency in processing newly filed applications.

In order to encourage greater use of the form, we now can furnish larger quantities without charge. Accordingly, distribution will be made in single copies or in multiples of 10 forms. Since our supply is limited, only orders for reasonable quantities can be filled.

The forms may be obtained from the receptionist in the lobby of Building 3 at our Arlington, Va. location or by mail request. The latter should be addressed to:

Commissioner of Patents
Washington, D.C. 20231,
Attn: Form Distribution

ROBERT GOTTSCHALK,
Sept. 11, 1972. *Commissioner of Patents.*

[903 O.G. 368]

---

(34) CHANGE IN COPY CERTIFICATION PROCEDURES

Pursuant to 28 USC 1744 the Patent Office provides "copies of letters patent or of any records, books, papers or drawings belonging to the Patent Office and relating to patents, authenticated under the seal of the Patent Office and certified by the Commissioner of Patents, or by another officer of the Patent Office authorized to do so by the Commissioner. . . ." In the interest of improved efficiency the Patent Office will, effective immediately, change its method of certifying copies of the recited materials. Thereafter, the certificate and the copy will be secured together by a staple in lieu of the ribbon currently employed. The new procedures will retain the use of the Patent Office seal and the certification by the Commissioner of Patents or other authorized officer in keeping with the requirements of the above statute.

RICHARD A. WAHL,
Sept. 20, 1972. *Acting Commissioner.*

[903 O.G. 368]

RECORDS AND FILES

(35) ACCESSIBILITY OF ASSIGNMENT RECORDS

In view of a number of inquires as to the manner in which Rule 1.12 of the Patent Office Rules of Practice, as amended August 23, 1965 (819 O.G. 443) is to be applied, the procedure which it is planned to follow in certain types of cases is set forth below.

1. Assignments relating to applications for registration of trademarks will be open to public inspection as heretofore.

2. The Office will not open certain parts only of an assignment document to public inspection. If such a document contains two or more items, any one of which, if alone, would be open to such inspection, then the entire document will be open. Thus, if an assignment covers either a trademark or a patent in addition to one or more patent applications, it will be available to the public ab initio; and if it covers a number of patent applications, it will be so available as soon as any one of them is patented. Assignments relating only to one or more pending applications for patent will not be open to public inspection.

3. If the application on which a patent was granted is a division or continuation of an earlier case, the assignment records of that case will be open to public inspection; similar situations involving continuation in part applications will be considered on their individual merits.

4. Assignment records relating to reissue applications will be open to public inspection.

EDWARD J. BRENNER,
Dec. 15, 1965. *Commissioner.*

[822 O.G. 769]

---

(36) NOTIFICATION RE: CONFLICT IN ASSIGNMENT IN CERTAIN APPLICATIONS

Effective September 12, 1966, Assignment Branch will discontinue mailing notification in cases where there is a conflict in assignment between an original application and its divisional, continuation, substitute, or continuation-in-part application.

Assignments from original applications are applied without charge ONLY to divisional, continuation, or substitute applications where the date of the assignment is prior to the filing date of the later-filed application. (Continuation-in-part applications require separate assignments if they are to be issued to the assignee.)

Practitioners are reminded of the provisions of Rule 334. Unless an assignment is filed at or prior to the date of payment of the issue fee, the patent will normally be issued in the name of the inventor.

Section 306 of the Manual of Patent Examining Procedures will be amended appropriately.

W. R. ARMSTRONG,
Director, Office of Patent Services.

Concurred:
(signed) R. A. WAHL,
Assistant Commissioner.

[830 O.G. 442 (Sept. 12, 1966)]

---

(37) RECORDING OF INSTRUMENTS

Effective April 1, 1967, the Patent Office will accept and record legible certified copies of original assignments or other instruments.

The certified copy, if not in the English language, will not be recorded unless accompanied by a translation signed by the translator.

Certification shall be to the fact that the instrument submitted is a true copy of the original and shall be made by a notary public or, if in a foreign country, by a consular officer of the United States or an officer authorized to administer oaths and authenticated by a consular officer of the United States.

RICHARD A. WAHL,
Mar. 3, 1967. *Assistant Commissioner.*

[836 O.G. 1111]

---

(38) PUBLIC SEARCH ROOM

Due to budget and personnel limitations which took effect on July 1, 1968, it has become necessary to adopt measures that are consistent with these limitations and that will permit continuance of Patent Office activities and facilities without curtailing their use to the public. Among these measures is the service of returning to the files those patent bundles used by the attorneys and the general public in the Public Search Room.

Beginning August 19, 1968, in order that free access to the stacks may be maintained, persons drawing patent bundles from the search files will be expected to return them to the file slots from which they were withdrawn.

This will enable the personnel in the Public Search Room to concentrate their time and efforts on the necessary updating and storage maintenance for improvement of the integrity of the search files.

RICHARD A. WAHL,
Aug. 12, 1968. *Assistant Commissioner.*

[854 O.G. 287]

---

(39) ASSIGNMENT INFORMATION FOR ISSUE FEE TRANSMITTAL FORM

Rule 334, revised November 4, 1969, requires . . . "At the time of payment of the issue fee, a statement must be furnished indicating whether or not an assignment has been filed with the Patent Office. In the event an assignment has been filed, such statement must include the name of the assignee and indicate whether or not an acknowledgment of a recorded assignment has been received from the Patent Office."

The Issue Fee Transmittal Form POL-85b revised December 1969, provides space (Item 2) for Assignment Data which should be completed to comply with the Rule. Unless an assignee's name and address are identified in Item 2 of the Issue Fee Transmittal Form POL-85b, the patent will issue to the applicant. Assignment data printed on the patent will be based on information so supplied.

A request for correction of error arising from failure to correctly provide this Assignment Data in Item 2 will be con-

sidered only under the provisions of Rule 323 for a certificate of correction of applicant's mistake.

The recording of instruments in the Assignment Branch is not affected by this notice.

WILLIAM E. SCHUYLER, JR.,
Sept. 28, 1970. *Commissioner of Patents.*

[879 O.G. 988]

---

(40) CERTIFIED COPIES OF APPLICATIONS AS ORIGINALLY FILED

The Patent Office has discontinued placing the assignments of record on the file wrapper of patent applications, except when a title report is requested or upon allowance of the case. Accordingly, the copies of applications prepared in response to requests for a certified copy of a patent application as filed, will no longer include an indication of assignments. Applicants desiring an indication of assignments of record should request separately certified copies of assignment documents.

ROBERT J. RISH,
Acting Assistant Commissioner for Administration.

[887 O.G. 1042 (6-22-71)]

---

(41) PATENTED FILES SERVICE

Delays have frequently been experienced in receiving files and other papers ordered from the Federal Records Center at Suitland, Md. To provide better service in this respect, the Patent Office has initiated its own pick up and delivery service to and from the storage facility. Customer orders are now normally filled within two days.

Orders for files may be placed at the Attorneys and Record Room Desk, Building 4, Room 1D01. There is no charge for this service.

ROBERT GOTTSCHALK,
Nov. 26, 1971. *Acting Commissioner of Patents.*

[893 O.G. 807]

---

(42) PUBLIC RECORDS CERTIFICATION DESK

The certification desk, located in Crystal Plaza in the Attorneys and Record Room, Building 4, Room 1D01, provides "on-the-spot" certifying service. This desk handles walk-in requests for certified copies of file wrappers, patented applications, patents, and selected papers from patented application files. The usual fee for this service ($1.00 per certification) may be applied at this location in the form of a paid cash order form, obtainable at the Cashier's Office adjacent the lobby of Building #2.

ROBERT GOTTSCHALK,
Nov. 26, 1971. *Acting Commissioner of Patents.*

[893 O.G. 810]

FEES AND PAYMENT OF MONEY

(43) REVISION OF "DISCONTINUANCE OF DEPOSIT ACCOUNT SERVICE FOR SALE OF PATENT COPIES"

In view of the difficulties experienced by many of its customers, the Patent Office is revising the Notice appearing in the December 1, 1964, issue of the *Official Gazette of the U.S. Patent Office*. This Notice—Discontinuance of Deposit Account Service for Sale of Patent Copies—is revised to except certain types of patent copy orders.

The Patent Office will now accept lists of fifty (50) or more numbers arranged in numerical sequence to be charged to Deposit Accounts. Service charges, such as Special Handling and Air Mail postage for these orders, may also be charged to Deposit Accounts.

C. A. KALK,
July 15, 1965. *Director of Administration.*

[818 O.G. 1207]

(44) FEES IN CONNECTION WITH AMENDMENTS TO PATENT APPLICATIONS

This notice supplements the Notice of September 10, 1965, 818 O.G. 1207, September 28, 1965, relating to the administration of the act of July 24, 1965, Public Law 89-83, increasing certain fees payable to the United States Patent Office.

That act provides for the payment of additional fees on presentation of certain claims during the prosecution of applications. This provision applies in the case of applications filed on or after October 25, 1965, the effective date of the act. In such cases, when any amendment is filed which presents additional claims over the total number covered by fees previously paid, it should be accompanied by any additional fees due.

As in the case of claims presented after an application is filed and before first action, described in the Notice of September 10, 1965, when independent claims are subsequently presented so that the number of uncanceled independent claims in the application as amended exceeds the number of such claims paid for, an additional fee of $10 is due for each such additional claim. Similarly, an additional fee of $2 is due for each claim added in excess of the number of uncanceled claims, independent or dependent, already paid for.

Treatment of Amendments Unaccompanied by Fees Due

Amendments filed during and after the prosecution of an application and not accompanied by the entire fee due upon such filing will be treated as follows:

If such an amendment is filed in reply to an Office action it will be regarded as not being fully responsive thereto and the practice set forth in section 714.03 of the Manual of Patent Examining Procedure will be followed, care being taken to avoid any abuse of this practice by attorneys as, for example, by habitual submission of such amendments without fees or with insufficient fees.

If an amendment which is not filed in response to an Office action is of such a nature as to require a fee and is not accompanied by the full fee required, it will not be entered and the applicant will be so advised.

Amendment During Interference

An amendment filed in connection with a motion to add counts to an interference (Rule 233) must be accompanied by the claim or claims to be added and with the appropriate fees, if any, which would be due if the amendments were to be entered. It may be that the amendments will never be entered. Only upon the granting of the motion is it necessary for the other party or parties to present the claims, but the fees must be paid whenever presented.

Claims which have been submitted in response to a suggestion by the Office for inclusion in an application must be accompanied by the fee due, if any.

Amendment After Requirement for Restriction

After a requirement for restriction or election of species, nonelected claims will be included in determining the fees due in connection with a subsequent amendment unless such claims are canceled.

Refunds

Money paid in excess or by mistake in connection with an amendment will be refunded in the usual manner.

Amendments affecting the claims cannot serve as the basis for granting any refund.

Money paid in connection with the filing of a proposed amendment will not be refunded by reason of the nonentry of the amendment.

EDWARD J. BRENNER,
Jan. 13, 1966. *Commissioner of Patents.*

[823 O.G. 814]

---

(45) DEPOSIT ACCOUNTS—STATUTORY FEE CHARGES

Beginning on May 1, 1966, and until further notice, statutory fees, including filing fees for patent, design, and trademark applications, issue fees, appeal fees and opposition, cancellation and petition fees may be charged against the deposit accounts provided for by Rule 25(a) of the Rules of Practice in patent cases. During this period the prohibition of Rule 25(b) against such charges will be suspended.

In view of the facts that these fees are indispensable parts of the actions to which they relate and that the charging

of a fee against an account which does not contain sufficient funds to cover it cannot be regarded as a payment of the fee, it is evident that the overdrawing of a deposit account may result in the loss of a vital date and may also impose a substantial burden on the Patent Office in making appropriate correction of its records. It is, therefore, necessary that effective steps be taken to avoid such overdrafts, as follows:

Checks of all accounts will be made periodically, and if any account is found to have been overdrawn, it will be immediately removed from the active accounts and no further drafts on it will be honored. Prompt payment of the outstanding balance will be required and the depositor or his attorney may be called on for an itemized statement identifying all statutory fees charged against the account during the period in question in order that it may be ascertained whether any previously granted date should be withdrawn.

It is emphasized that the success of the procedure outlined above depends upon the maintenance of a sufficient balance in deposit accounts at all times to meet any charges made against them. The Office must, therefore, strictly refuse to permit any depositor who has once overdrawn his account to maintain such an account in the future and in the event that any substantial number of overdrafts occurs it may be necessary to reestablish the prohibition of Rule 25(b) against charging statutory fees against deposit accounts.

Accordingly, effective May 1, 1966, the requirement of Rule 25(a) that an amount sufficient to cover all charges made against an account must always be on deposit will be strictly enforced, regardless of whether any fee is included in such charges and where this requirement is not complied with the account involved will be removed from the active accounts.

EDWARD J. BRENNER,
Feb. 23, 1966. *Commissioner.*

[824 O.G. 1200]

---

(46) PRACTICE IN THE USE OF ACCOUNTS FOR PAYMENT OF STATUTORY FEES

In the OFFICIAL GAZETTES of March 15, 22, and 29, there appeared copies of an announcement by the Commissioner providing for a trial use of accounts established under Rule 25 for the payment of statutory fees. A number of questions have come up in connection with the use of accounts in the payment of these fees prescribed by Public Law 89–83 and, in the interest of uniform practice, publication of a statement is warranted.

A general direction by an applicant or attorney to charge to an account these fees as they arise in any application prosecuted by the applicant, the attorney, or the firm will not be effective for such a purpose. Authority to make charges will be limited to a particular application.

A separate direction to charge shall be filed for each fee. Each such direction to charge a fee shall be transmitted on a separate sheet of paper and, in the case of fees based on modification of claims shall include the best estimate of the fee due. Failure to include such an estimate provides the basis for a refusal to enter any amendment transmitted therewith, as an incomplete response. Where variable fees are involved inclusion of a direction to charge or credit a deficiency or overpayment would appear appropriate.

An issue fee will not be charged to an account until a notice of allowance has been forwarded and a reply to that notice received.

For the purposes of determining the fee due the Patent Office, a claim will be treated as dependent if it contains reference to one other claim in the application. A claim determined to be dependent by this test will be entered if the fee paid reflects this determination. This does not, however, prevent the rejection of such a claim as improper, if, in fact, it is not a dependent claim.

EDWARD J. BRENNER,
Apr. 12, 1966. *Commissioner of Patents.*

[825 O.G. 1183]

---

(47) DEPENDENT CLAIMS

Although the notice published on October 5, 1965, in 819 O.G. 3, explained that for the purposes of the present fee bill, Public Law 89–83, approved July 24, 1965, the Patent Office will consider a proper dependent claim as being one which incorporates by reference a single preceding claim, whether independent or dependent, and includes all the limitations of the claim so incorporated, there appears to be still some uncertainty on this matter and it is therefore thought to be desirable to elaborate it.

Since the initial determination, for fee purposes, as to whether a claim is dependent must be made by persons other than examiners, it is necessary, at that time, to accept as dependent virtually every claim which refers to another claim, without determining whether there is actually a true dependent relationship. Such acceptance does not, however, preclude a subsequent holding by the examiner that a claim is not a proper dependent claim.

An essential characteristic of a proper dependent claim is that it shall include every limitation of the claim from which it depends (35 U.S.C. 112) or in other words that it shall not conceivably be infringed by anything which would not also infringe the basic claim. Thus, for example, if claim 1 recites the combination of elements *a*, *b*, *c* and *d*, a claim reciting the structure of claim 1 in which *d* was omitted or replaced by *e* would not be a proper dependent claim, even though it placed further limitations on the remaining elements or added still other elements.

The fact that a dependent claim which is otherwise proper might require a separate search or be separately classified from the claim on which it depends would not render it an improper dependent claim, although it might result in a requirement for restriction.

The fact that the independent and dependent claims are in different statutory classes does not, in itself, render the latter improper. Thus, if claim 1 recites a specific product a claim for the method of making the product of claim 1 in a particular manner would be a proper dependent claim since it could not be infringed without infringing claim 1. Similarly, if claim 1 recites a method of making a product, a claim for a product made by the method of claim 1 could be a proper dependent claim. On the other hand, if claim 1 recites a method of making a specified product, a claim to the product set forth in claim 1 would not be a proper dependent claim if the product might be made in other ways.

Any claim which is in dependent form but which is so worded that it does not, in fact, include every limitation of the claim on which it depends, will be required to be cancelled as not being a proper dependent claim; and cancellation of any further claim depending on such a dependent claim will be similarly required. The applicant may thereupon amend the claims to place them in proper dependent form, or may redraft them as independent claims upon payment of any necessary additional fee.

The basis for the difference in fees between independent and dependent claims is the fact that the examination of a dependent claim is normally a comparatively simple matter after the claim on which it depends has been examined. This relationship, however, obtains only when the independent claim represents a bona fide attempt to define the invention and to distinguish it from the known prior art. Accordingly, the presentation of a claim which on its face is obviously unpatentable or indefinite, as basis on which other claims are dependent, is not considered to be proper practice. One example of such a practice involves the use of a claim drawn to "all the features of novelty herein disclosed," with other claims, which actually recite the features thought to be novel, being dependent on the first. A similarly objectionable arrangement would involve the use, as a basic independent claim, of a claim merely reciting "a wheeled vehicle," "an amino acid" or "an internal combustion engine."

Such a practice as that just described involves not only an attempt to evade the free provisions of Public Law 89–83, but also the presentation of a claim known by the attorney or agent presenting it to be unpatentable. Any registered patent attorney or agent who makes a practice of presenting claims of this character may be called on to explain his actions.

(signed) EDWARD J. BRENNER,
June 8, 1966. *Commissioner.*

[828 O.G. 1]

---

(48) DEPOSIT ACCOUNTS

The practice instituted on May 1, 1966, pursuant to the notice of February 23, 1966 (824 O.G. 1200), whereby statutory fees may be charged against deposit accounts, and such

accounts are closed if overdrawn, has resulted in certain difficulties for the Patent Office and deposit account holders. It has been decided therefore to modify that practice as indicated below.

As was pointed out in that notice, the charging of a fee against an overdrawn account cannot be considered as payment of the fee until a proper balance is restored or payment is made in some other way. Accordingly, deposit account holders who charge such fees must assume the risk of losing vital dates if they do not maintain a proper balance in their accounts at all times.

Apart from this, however, the overdrawing of an account places a burden on the Patent Office, particularly where a number of items are charged after the overdraft occurs, and it is appropriate that those who are responsible for causing such a condition should bear the cost of correcting it. In view of this fact, and of the hardship frequently caused if an account is permanently closed, the practice of closing deposit accounts merely because they are overdrawn will be discontinued, effective August 1, 1966. In lieu thereof an overdrawn account will be immediately suspended and no charges will be accepted against it until a proper balance is restored, together with a payment of ten dollars to cover the work done by the Patent Office incident to suspending and reinstating the account and dealing with charges which may have been made in the meantime. It is expected, however, that reasonable precautions will be taken in all cases to avoid overdrafts, and if an account is suspended repeatedly it will be necessary to close it.

Similarly, because of the burden placed on the Patent Office incident to the operation of deposit accounts, a charge of ten dollars will be made for opening each new account.

EDWARD J. BRENNER,
June 23, 1966. *Commissioner.*

[828 O.G. 377]

(49) PRACTICE RE: FILING FEES

It is suggested that attorneys review the notices pertaining to filing fees under the new Fee Act of 1965 appearing at 818 O.G. 1207, September 28, 1965, and 823 O.G. 814, February 15, 1966.

The filing fee includes the basic $65 fee plus an additional fee corresponding to the number and type of claims presented. For filing fee purposes the Patent Office considers any claim that specifically refers back to another claim to be a dependent claim, regardless of statutory class.

It appears that some attorneys are submitting filing fees in excess of their computations, apparently to insure against loss of a filing date should their computations be in error. This is neither necessary nor desirable. The Application Branch has been authorized to accept all applications, otherwise acceptable, if the basic fee of $65 is submitted, and if the deficiency is no more than $25 of the required filing fee, and to require payment of the deficiency within a stated period upon notification of the deficiency. Practitioners are urged to discontinue submitting excessive fees, since processing such fees has proved costly to the Office, and since applicants are believed to be adequately protected against loss of filing date by the practice outlined above.

There appears to be an erroneous impression that a Rule 147 divisional case requires a filing fee based on the claims in the parent case. The 818 O.G. 1207 notice specifically states that an amendment filed with a Rule 147 case will be effective to reduce the number of claims upon which the fee is based.

RICHARD A. WAHL,
June 30, 1966. *Assistant Commissioner.*

[828 O.G. 1085]

(50) ISSUE FEES

Effective March 31, 1969, the Patent Office will discontinue the practice of estimating the number of printed pages of specification in advance of printing.

Instead, a Minimum Issue Fee will be due three months from the date of the Notice of Allowance. This minimum fee, which consists of $100 plus $10 for the first page of printed specification plus $2 for each sheet of drawing, will be shown on the Notice of Allowance which has been revised to reflect the new practice.

After the patent is printed and the number of pages of specification is found to exceed the one already paid for, a Notice of Balance of Issue Fee Due will be attached to the Grant. Failure to pay this balance within THREE MONTHS FROM THE DATE OF THE PATENT will result in lapse of the patent.

Practitioners are urged to use the special fee transmittal forms provided with the Notice of Allowance and the Notice of Balance of Issue Fee Due.

The above fees will not be accepted from anyone other than the applicant, his assignee, attorney, or a party in interest as shown by the records of the Patent Office.

ATTENTION is also directed to the space designated on the Notice of Allowance Transmittal form PO–85*a* wherein the name of the assignee is required *if it is desired to have the patent issued to an assignee or assignees.*

RICHARD A. WAHL,
Jan. 31, 1969. *Assistant Commissioner.*

[860 O.G. 2]

(51) CALCULATION OF ISSUE FEES

This notice is to clairfy the manner in which the balance of issue fee due is calculated for the printed pages of specification (including claims) in excess of the one page already paid for by payment of the Minimum Issue Fee (see the notice of January 31, 1969, 860 O.G. 2).

Under the authority of 35 U.S.C. 151, the charge is disregarded WHERE ONLY ONE ADDITIONAL PAGE OR LESS is involved. Thus, if the patent consists of two pages or less, no balance fee is due. However, if the patent consists of three pages, a Notice of Balance of Issue Fee Due for $20 is mailed together with the original patent grant. (A page consists of one side of a printed sheet containing two columns or less.)

CLARENCE A. KALK,
Acting Assistant Commissioner for Administration.
Feb. 4, 1970.

[872 O.G. 1]

(52) FEES IN CONNECTION WITH AMENDMENTS TO PATENT APPLICATIONS

An increasing number of amendments are being received with improper fees. Because of the problems occasioned thereby, it is suggested that attorneys review the notices pertaining to fees and the Office practice related thereto (823 O.G. 814, Feb. 15, 1966; 828 O.G. 1, July 5, 1966; 828 O.G. 1085, July 26, 1966). Attention is invited to the new form 3.52, Amendment transmittal letter, for additional guidance in computing fees (869 O.G. 1036, Dec. 23, 1969). This form may be obtained from the Receptionist in Building 3 of Crystal Plaza. The new loose-leaf rule book, which will soon be available, includes a sample form (No. 52) also. When submitting the new amendment transmittal letter please include the Art Unit and Examiner's name.

The above notices and new form may also be found as items 24, 25, 29 and 147 in the consolidated listing of notices in the OFFICIAL GAZETTE of Jan. 13, 1970.

RICHARD A. WAHL,
Mar. 13, 1970. *Assistant Commissioner.*

[873 O.G. 1]

(53) EXAMINER AMENDMENTS—CHARGE AGAINST DEPOSIT ACCOUNTS

The Examiner's Amendment practice is hereby extended to include charges against deposit accounts under special conditions. Charges under this practice shall not exceed $50.00 for each patent application.

In order to expedite the issuance of a patent on an application otherwise ready for allowance, an Examiner's Amendment will be acceptable to make a charge against a deposit account provided prior approval is obtained from the attorney or agent. When such an Examiner's Amendment is prepared, the prior approval will be indicated by identification of the name of the authorizing party, the date and type (personal or telephone) of authorization, the purpose for which the charge is

made (drawing correction, additional claims, etc.), and the deposit account number. Further identifying data, if deemed necessary and requested by the attorney, should also be included in the Examiner's Amendment.

RICHARD A. WAHL,
Mar. 17, 1970. *Acting Commissioner of Patents.*

[873 O.G. 667]

(54) CHANGES IN CHARGES FOR COPIES

The Patent Office is announcing a change in the charges for copies of materials produced on coin-operated copiers located at Crystal Plaza. The charge will be 15¢ per page.

This change will be effective within the next 30 to 45 days due to the engineering changes necessary to accommodate the difference in number and value of coins.

The Patent Office will monitor this change for a period of six months to: (1) Evaluate effects on other services, equipment utilization, materials, and facilities; and, (2) Ensure that the new charge of 15¢ per page will enable the Patent Office to fully recover the cost of operating the copiers.

At the end of the period, the data obtained will be evaluated with a view to continuance or discontinuance of the reduced rate.

ROBERT GOTTSCHALK,
June 6, 1972. *Commissioner of Patents.*

[899 O.G. 1230]

POWERS OF ATTORNEY

(55) WITHDRAWAL OF ATTORNEY

To expedite the handling of requests for permission to withdraw as attorney, under Rule 36, the request should be submitted in triplicate (original and two copies) and indicate thereon the present mailing address of the attorney who is withdrawing.

JOSEPH SCHIMMEL,
Apr. 18, 1967. *Solicitor.*

[837 O.G. 667]

(56) RULE 34—APPEARANCES BEFORE BOARD OF APPEALS

Applicants and their attorneys are reminded that Rule 34 provides that *before* any attorney or agent will be allowed to "take action of *any kind* in any application or proceeding, a written power of attorney or authorization . . . must be filed in the particular application or proceeding." [Italics added.]

Henceforth this rule will be strictly enforced. This applies to attorneys appearing at oral hearings before the Board of Appeals.

EDWIN L. REYNOLDS,
July 26, 1967. *First Assistant Commissioner.*

[841 O.G. 669]

(57) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER 1—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 1—RULES OF PRACTICE IN PATENT CASES

PART 2—RULES OF PRACTICE IN TRADEMARK CASES

Recognition of Attorneys and Agents, Standards of Conduct, and Patent Application Petitions

These rule changes eliminate present provision for the recognition and registration of firms of attorneys and agents for practice in patent and trademark cases, and permit registered attorneys and agents to file papers in patent applications without the need for filing powers of attorney or authorizations. The changes further establish the Code of Professional Responsibility of the American Bar Association as the standard of conduct for those practicing before the Patent Office insofar as the Code is not inconsistent with Patent Office rules. Other changes eliminate the present requirement for a petition or other express request for a patent and liberalize requirements as to inventor names.

The changes relating to the discontinuance of the recognition and registration of firms are intended to obviate problems incident to such registration such as, for example, the lack of certainty as to the responsibility of individual attorneys and agents for actions taken by registered nonpartnership business entities, such as professional corporations, the problems associated with the rights to firm names and registration numbers upon dissolution or reorganization of firms, and the recognition as "firms" of groups of attorneys or agents, such as parts of corporation organizations, when the attorneys and agents are not in fact associated as partners. Acceptance of papers filed in patent applications by registered attorneys and agents upon a representation that the attorney or agent is authorized to act in a representative capacity is for the purpose of facilitating responses on behalf of applicants in patent applications, and, further, to obviate the need for filing powers of attorney or authorizations of agent in individual applications when there has been a change in composition of law firms or corporate patent staffs. Interviews with a registered attorney or agent not of record will, in view of 35 U.S.C. section 122, be conducted only on the basis of information and files supplied by the attorney or agent.

Provision is made for an applicant to supply an address to receive correspondence from the Patent Office concerning his application, in addition to his residence address, so that the Patent Office may direct mail to any address of applicant's selection, such as a corporate patent department, a firm of attorneys or agents, or an individual attorney, agent, or other person. In connection with patent applications pending upon the effective date of the changes in which a firm is the only representative of record (and in connection with divisions and continuations thereof not requiring execution by the applicant), the address of the firm will be considered to be the correspondence address for the application. Powers of attorney and authorizations of agent in favor of registered individual attorneys and agents will, of course, continue to be recognized and accepted.

The amendments to §§ 1.344 and 2.13 are intended to provide a more definite and uniform standard of conduct for those engaged in practice before the Patent Office than do present rules. The Code of Professional Responsibility of the American Bar Association is incorporated by reference in the rule with a statement as to where copies thereof may be inspected or obtained. The rule specifies that the standards referred to are those set forth in the Code of Professional Responsibility as amended February 24, 1970, and the rule does not, therefore, refer to standards imposed by later amendments of the Code. Any standards in other Patent Office rules which are inconsistent with standards imposed by the Code (as, for example, the limitations in § 1.345(b) on the distribution of professional announcements and the duties imposed by § 1.205(b)) remain in force.

The elimination of the requirement for a petition requesting the grant of a patent and the relaxation of requirements as to the names of applicants are intended to simplify patent application procedures. Section 1.76 is being revoked as redundant in view of revisions in § 1.57.

Notice of proposed rule making regarding revocation of §§ 1.35 and 1.61 and revision of §§ 1.14, 1.21, 1.33, 1.34, 1.36, 1.51, 1.52, 1.57, 1.76, 1.341, 1.343, 1.344, 1.346, 1.347, 2.13, and 2.15 of Title 37, Code of Federal Regulations was published in the Federal Register of January 15, 1971 (36 F.R. 611). Interested persons were given an opportunity to participate in the rulemaking process through submission of comments in writing and at an oral hearing held on March 23, 1971. The rules are being adopted after full and careful consideration of all the material submitted. The departures from the published text reflect certain of the views expressed in the submitted material.

Effective date. This revision shall become effective on the date of its publication in the Federal Register (7–2–71).

In consideration of the comments received and pursuant to the authority contained in Section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), and Section 31 of that Act (66 Stat. 795; 35 U.S.C. 31), Title 37 of the Code of Federal Regulations is hereby amended as follows:

1. In § 1.14, paragraph (a) is revised to read as follows:

§ 1.14 *Patent applications preserved in secrecy.*

(a) Except as provided in § 1.11(b) pending patent applications are preserved in secrecy. No information will be given by the Office respecting the filing by any particular

person of an application for a patent, the pendency of any particular case before it, or the subject matter of any particular application, nor will access be given to or copies furnished of any pending application or papers relating thereto, without written authority in that particular application from the applicant or his assignee or attorney or agent of record, unless it shall be necessary to the proper conduct of business before the Office or as provided by this part.

* * * * *

2. In § 1.21, paragraph (h) is revised to read as follows:

§ 1.21 *Patent and miscellaneous fees and charges.*

* * * * *

(h) For registration of an attorney or agent:

For admission to examination for registration to practice, fee payable upon application	$35.00
On registration to practice	25.00

* * * * *

3. Section 1.33 is revised to read as follows:

§ 1.33 *Correspondence respecting patent applications and proceedings.*

(a) The residence and post office address of the applicant must appear in the oath or declaration if not stated elsewhere in the application. The applicant may also specify and an attorney or agent of record may specify a correspondence address to which communications about the application are to be directed. All notices, official letters, and other communications in the case will be directed to the correspondence address or, if no such correspondence address is specified, to an attorney or agent of record (see § 1.34(b)), or, if no attorney or agent is of record, to the applicant, or to any assignee of record of the entire interest if the applicant or such assignee so requests, or to an assignee of an undivided part if the applicant so requests, at the post office address of which the Office has been notified in the case. Amendments and other papers filed in the application must be signed: (1) By the applicant, or (2) if there is an assignee of record of an undivided part interest, by the applicant and such assignee, or (3) if there is an assignee of record of the entire interest, by such assignee, or (4) by an attorney or agent of record, or (5) by a registered attorney or agent not of record who acts in a representative capacity under the provisions of § 1.34(a). Double correspondence with an applicant and his attorney or agent, or with more than one attorney or agent, will not be undertaken. If more than one attorney or agent be made of record and a correspondence address has not been specified, correspondence will be held with the one last made of record.

(b) An applicant who has not made of record a registered attorney or agent may be required to state whether he received assistance in the preparation or prosecution of his application, for which any compensation or consideration was given or charged, and if so, to disclose the name or names of the person or persons providing such assistance. This includes the preparation for the applicant of the specification and amendments or other papers to be filed in the Patent Office, as well as other assistance in such matters, but does not include merely making drawings by draftsmen or stenographic services in typing papers.

4. Section 1.34 is revised to read as follows:

§ 1.34 *Recognition for representation.*

(a) When a registered attorney or agent acting in a representative capacity appears in person or signs a paper in practice before the Patent Office in a patent case, his personal appearance or signature shall constitute a representation to the Patent Office that, under the provisions of this part and the law, he is authorized to represent the particular party in whose behalf he acts. In filing such a paper, the attorney or agent should specify his registration number with his signature. Further proof of authority to act in a representative capacity may be required.

(b) When an attorney or agent shall have filed his power of attorney, or authorization, duly executed by the person or persons entitled to prosecute the application, he is a principal attorney of record in the case. A principal attorney or agent so appointed, may appoint an associate attorney or agent who shall also then be of record.

§ 1.35 [*Revoked*]

5. Section 1.35 is revoked.

6. Section 1.36 is revised to read as follows:

§ 1.36 *Revocation of power of attorney or authorization; withdrawal of attorney or agent.*

A power of attorney or authorization of agent may be revoked at any stage in the proceedings of a case, and an attorney or agent may withdraw, upon application to and approval by the Commissioner. An attorney or agent, except an associate attorney or agent whose address is the same as that of the principal attorney or agent, will be notified of the revocation of his power of attorney or authorization, and the applicant will be notified of the withdrawal of the attorney or agent. An assignment will not of itself operate as a revocation of a power or authorization previously given, but the assignee of the entire interest may revoke previous powers and be represented by an attorney or agent of his own selection.

7. Section 1.51 is revised to read as follows:

§ 1.51 *General requisites of an application.*

Applications for patents must be made to the Commissioner of Patents. A complete application comprises:

(a) A specification, including a claim or claims, see §§ 1.71 to 1.77.

(b) An oath or declaration, see §§ 1.65 and 1.68.

(c) Drawings, when necessary, see §§ 1.81 to 1.88.

(d) The prescribed filing fee. (See 35 U.S.C. section 41 for filing fees.)

8. In § 1.52, paragraph (a) is revised to read as follows:

§ 1.52 *Language, paper, writing, margins.*

(a) The specification and oath or declaration must be in the English language. All papers which are to become a part of the permanent records of the Patent Office must be legibly written or printed in permanent ink.

* * * * *

9. Section 1.57 is revised to read as follows:

§ 1.57 *Signature.*

The application must be signed by the applicant in person. The signature to the oath or declaration will be accepted as the signature to the application provided the oath or declaration is attached to and refers to the specification and claims to which it applies. Otherwise the signature must appear at the end of the specification after the claims. Full names must be given, including at least one given name without abbreviation together with any other given name or initial.

§ 1.61 [*Revoked*]

10. Section 1.61 is revoked.

§ 1.76 [*Revoked*]

11. Section 1.76 is revoked.

12. In § 1.77, paragraph (h) is revised to read as follows:

§ 1.77 *Arrangement of application.*

* * * * *

(h) Signature. (See § 1.57.)

§ 1.341 [*Amended*]

13. Section 1.341 is amended by revoking paragraph (d).

14. Section 1.343 is revised to read as follows:

§ 1.343 *Persons not registered or recognized.*

Only persons who are registered or given limited recognition as provided in § 1.342 will be permitted to prosecute patent applications of others before the Patent Office.

15. Section 1.344 is revised to read as follows:

§ 1.344 *Professional conduct.*

Attorneys and agents appearing before the Patent Office must conform to the standards of ethical and professional conduct set forth in the Code of Professional Responsibility of the American Bar Association as amended February 24, 1970, insofar as such code is not inconsistent with this part. A copy of the said code is available for inspection in the Office of the Solicitor, U.S. Patent Office, Room 11C04, Building 3, Crystal Plaza, 2021 Jefferson Davis Highway, Arlington, Va. Copies of the code are available upon request to the American Bar Center, 1155 E. 60th Street, Chicago, Ill. 60637.

16. Section 1.346 is revised to read as follows:

§ 1.346 *Signature and certificate of attorney.*

Every paper filed by an attorney or agent representing an applicant or party to a proceeding in the Patent Office must

bear the signature of such attorney or agent, except papers which are required to be signed by the applicant or party in person (such as the application itself and affidavits or declarations required of applicants). The signature of an attorney or agent to a paper filed by him, or the filing or presentation of any paper by him, constitutes a certificate that the paper has been read; that its filing is authorized; that to the best of his knowledge, information, and belief, there is good ground to support it; and that it is not interposed for delay.

17. Section 1.347 is revised to read as follows:

§ 1.347 *Removing names from registers.*

Attorneys and agents, registered to practice before the Patent Office, should notify the Office of any change of address for entry on the register, by letter separate from any notice of change of address filed in individual applications. The Office may address a letter to any person on the registers, at the address of which separate notice for the register was last received, for the purpose of ascertaining whether such person desires to remain on the register. The name of any person failing to reply and give the information requested within a time limit specified will be removed from the register, and the names so removed published in the OFFICIAL GAZETTE. Any name so removed may be reinstated, either on the register of attorneys or the register of agents, as may be appropriate.

18. Section 2.13 is revised to read as follows:

§ 2.13 *Professional conduct.*

Attorneys and other persons appearing before the Patent Office in trademark cases must conform to the standards of ethical and professional conduct set forth in the Code of Professional Responsibility of the American Bar Association as amended February 24, 1970, insofar as such code is not inconsistent with this part. A copy of the said code is available for inspection in the Office of the Solicitor, U.S. Patent Office, Room 11C04, Building 3, Crystal Plaza, 2021 Jefferson Davis Highway, Arlington, Va. Copies of the code are available upon request to the American Bar Center, 1155 East 60th Street, Chicago, Ill. 60637.

19. Section 2.15 is revised to read as follows:

§ 2.15 *Signature and certificate of attorney or agent.*

Every paper filed by an attorney at law or other person representing an applicant or party to a proceeding in the Patent Office must bear the signature of such attorney at law or other person except those papers which are required to be signed by the applicant or party. The signature of an attorney at law or such other person to a paper filed by him, or the filing of any paper by him, constitutes a certificate that the paper has been read; that its filing is authorized; that to the best of his knowledge, information, and belief there is good ground to support it; and that it is not interposed for delay.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Approved:

JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

[FR Doc. 71-9387; Filed 7-1-71; 8:49 am]

Published in 36 F.R. 12616, July 2, 1971

[890 O.G. 298 (Sept. 14, 1971)]

---

(58) RECOGNITION OF ATTORNEYS AND AGENTS

In connection with the revised rules concerning recognition of attorneys and agents, published in the Federal Register July 2, 1971 (36 F.R. 12616), the Patent Office will operate under the following procedures.

The Patent Office will continue to give effect to powers of attorney and authorizations of agent naming firms filed, with respect to patent applications, before the effective date of the rules, July 2, 1971.

As stated in the revised rules, powers of attorney or authorizations of agent naming firms of attorneys or agents filed in patent applications after July 2, 1971 will not be recognized. However, the Patent Office will construe any such powers or authorizations filed prior to October 1, 1971, as a direction to consider the address of the firm as the correspondence address for the application.

The privilege afforded by revised Rule 34(a) of the Rules of Practice in Patent Cases as to recognition of registered attorneys and agents not of record will apply to all applications whether filed before or after the effective date. Attention is called to the requirement of Rule 34(a) that a paper filed by a registered patent attorney or agent in any application in which he is not of record should include both his signature and registration number.

Powers of attorney and authorizations of agent under Rule 34(b) naming one or more registered individuals may continue to be made.

As prior to the effective date of the revised rules, where a paper is hand delivered to the Office and that paper has been properly signed by a registered attorney or agent whether or not of record in the particular case involved, a duplicate copy may be appropriately marked by the Patent Office employee receiving the original and returned to the person delivering the paper. As an example, a duplicate copy of a request for an extension of time to make a response may be marked approved, initialed or signed, and returned to the delivering person.

WILLIAM E. SCHUYLER, JR.,
Aug. 5, 1971. *Commissioner of Patents.*

[890 O.G. 2]

---

(59) RECOGNITION OF FIRMS OF ATTORNEYS AND AGENTS

The notice of August 5, 1971, appearing in the OFFICIAL GAZETTE September 7, 1971 (890 O.G. 2) is revised as follows.

The originally announced period terminating October 1, 1971, relating to appointments of firms of attorneys or agents, filed in the Patent Office after July 2, 1971, is hereby extended. Accordingly, until further notice, any power of attorney or authorization of agent naming a firm, received in the Patent Office after July 2, 1971, will be construed as a direction to consider the firm name and address as the correspondence address of the application.

ROBERT GOTTSCHALK,
Sept. 27, 1971. *Acting Commissioner of Patents.*

[891 O.G. 886]

APPLICATION CONTENT

(60) DECLARATION IN LIEU OF OATH—RIBBONING OF PAPERS UNNECESSARY

Recent legislation, 35 U.S.C. 25, and Rule 68 based thereon permit applicants to make a written declaration in lieu of the customary oath or affirmation which accompanies a patent application.

Such a declaration, even if signed in a country foreign to the United States, need not be ribboned to the other papers.

The declaration, like the oath, is an integral part of the application and must be maintained together therewith. When a declaration is used, it is unnecessary to appear before any official in connection with the making of the declaration.

Further details are given in 29 F.R. 18502, Dec. 29, 1964, 811 O.G. 2.

RICHARD A. WAHL,
Mar. 2, 1965. *Superintendent, Patent Examining Corps.*

[813 O.G. 2]

---

(61) GUIDELINES FOR DRAFTING A MODEL PATENT APPLICATION UNDER THE REVISED RULES

The following guidelines illustrate the preferred layout and content for patent applications. They have been prepared to supplement the amendments to the rules which are effective January 1, 1967. These guidelines are suggested for the applicant's use.

Arrangement and Contents of the Specification

The following order of arrangement is preferable in framing the specification and, except for the title of the invention,

each of the lettered items should be preceded by the headings indicated.

(a) Title of the Invention.
(b) Abstract of the Disclosure.
(c) Cross-References to Related Applications (if any).
(d) Background of the Invention.
1. Field of the Invention.
2. Description of the Prior Art.
(e) Summary of the Invention.
(f) Brief Description of the Drawing.
(g) Description of the Preferred Embodiment(s).
(h) Claim(s).

(a) *Title of the Invention:* (See Rule 72(a).) The title of the invention should be placed at the top of the first page of the specification. It should be brief but technically accurate and descriptive.

(b) *Abstract of the Disclosure:* (See Rule 72(b), MPEP 608.01(a), and 831 O.G. 1328, October 25, 1966.)

(c) *Cross-References to Related Applications:* (See Rule 78 and MPEP 201.11.)

(d) *Background of the Invention:* The specification should set forth the Background of the Invention in two parts:

(1) Field of the Invention: A statement of the field of art to which the invention pertains. This statement may include a paraphrasing of the applicable U.S. patent classification definities. The statement should be directed to the subject matter of the claimed invention.

(2) Description of the Prior Art: A paragraph(s) describing to the extent practical the state of the prior art known to the applicant, including references to specific prior art where appropriate. Where applicable, the problems involved in the prior art, which are solved by the applicant's invention, should be indicated.

(e) *Summary:* A brief summary or general statement of the invention as set forth in Rule 73. The summary is separate and distinct from the abstract and is directed toward the invention rather than the disclosure as a whole. The summary may point out the advantages of the invention or how it solves problems previously existent in the prior art (and preferably indicated in the Background of the Invention). In chemical cases it should point out in general terms the utility of the invention. If possible, the nature and gist of the invention or the inventive concept should be set forth. Objects of the invention should be treated briefly and only to the extent that they contribute to an understanding of the invention.

(f) *Brief Description of the Drawing:* A reference to and brief description of the drawing(s) as set forth in Rule 74.

(g) *Description of the Preferred Embodiment(s):* A description of the preferred embodiment(s) of the invention as required in Rule 71. The description should be as short and specific as is necessary to adequately and accurately describe the invention.

Where elements or groups of elements, compounds, and processes, which are conventional and generally widely known in the field to which the invention pertains, form a part of the invention described and their exact nature or type is not necessary for an understanding and use of the invention by a person skilled in the art, they should not be described in detail. However, where particularly complicated subject matter is involved or where the elements, compounds, or processes may not be commonly or widely known in the field, the specification should refer to another patent or readily available publication which adequately describes the subject matter.

(h) *Claim(s):* (See Rule 75.) A claim may be typed with the various elements subdivided in paragraph form. There may be plural indentations to further segregate subcombinations or related steps.

Reference characters corresponding to elements recited in the detailed description and the drawings may be used in conjunction with the recitation of the same element or group of elements in the claims. The reference characters, however, should be enclosed within parentheses so as to avoid confusion with other numbers or characters which may appear in the claims. The use of reference characters is to be considered as having no effect on the scope of the claims.

Claims should preferably be arranged in order of scope so that the first claim presented is the broadest. Where separate species are claimed, the claims of like species should be grouped together where possible and physically separated by drawing a line between claims or groups of claims. (Both of these provisions may not be practical or possible where several species claims depend from the same generic claim.) Similarly, product and process claims should be separately grouped. Such arrangements are for the purpose of facilitating classification and examination.

The form of claim required in Rule 75(e) is particularly adapted for the description of improvement type inventions. It is to be considered a combination claim and should be drafted with this thought in mind.

In drafting claims in accordance with Rule 75(e), the preamble is to be considered to positively and clearly include all the elements or steps recited therein as a part of the claimed combination.

Oath

(See Rule 65.) Where one or more previously filed foreign applications are cited or mentioned in the oath, complete identifying data, including the application or serial number as well as the country and date of filing, should be provided.

EDWARD J. BRENNER,
Date: Oct. 12, 1966. *Commissioner of Patents.*

[832 O.G. 5]

---

(62) PLANT PATENT APPLICATIONS—FILING DATE

Applicants and their attorneys are reminded that an application for a patent for a plant must include two copies of the specification, Rule 163(b), and two copies of the drawing when in color, Rule 165(b).

Effective immediately, applications for plant patents which fail to include two copies of the specification and two copies of the drawing when in color will be accepted for filing only. The Application Branch will notify the applicant immediately of this deficiency and require the same to be rectified within one month. Failure to do so will result in loss of filing date.

RICHARD A. WAHL,
Nov. 21, 1968. *Assistant Commissioner.*

[857 O.G. 668]

---

(63) REDUCTION IN PATENT APPLICATION DISCLOSURE

Request for Comments

A joint committee comprising representatives of the Patent Office, the American Bar Association and the American Patent Law Association was established in September 1968 for purposes of investigating ways in which patent application disclosures could be improved and in particular ways in which the disclosures could be reduced. In the course of committee deliberations a number of proposals were generated. Those that appeared to be most practical and to hold most promise for early implementation have been compiled in the form of proposed "Guidelines for Preparation of Patent Application Disclosures." The guidelines are set forth below for review and comment. All persons who desire to present their views, objections, recommendations, or suggestions in connection therewith are invited to do so by forwarding the same to the Commissioner of Patents, Washington, D.C., 20231 on or before March 31, 1969. No hearing will be scheduled.

GUIDELINES FOR PREPARATION OF PATENT APPLICATION DISCLOSURES

Applications for patents frequently contain descriptive and illustrative material in excess of that required by 35 U.S.C. 112. If such material were to be excluded from the application tri-fold benefits should accrue:

1. The time and costs involved in the preparation of an application should be reduced.
2. Examination time should be less.
3. There should be a reduction in patent printing costs.

In an effort to reduce such excesses, at least in part, the following guidelines, relating to preparation of patent applications, have been promulgated.

Drawing

The illustration on the drawing should be restricted to the invention disclosed in the application. Old and known subject

matter should be omitted unless essential for establishment of environment or for a clear understanding of the invention. If disclosure of the latter type is essential it should be presented in skeleton or phantom form if possible. Reference numerals for such material should be held to a minimum.

Conventional sub-assemblies should be shown in block form with appropriate legends or by means of standard drawing symbols, in instances where detailed disclosure is not essential for a proper understanding of the invention. If there is doubt as to whether or not symbolical representation is appropriate, reference should be made in the descriptive material to a patent or publication which will support the position that the item so illustrated is conventional with the understanding that the supporting document or the appropriate portion thereof will be made available upon demand.

Flow diagrams should be treated in a similar manner.

Shading should be provided on the drawing only if essential for illustrating contours or showing specific relationships between structural parts. Test—can the invention be clearly understood in the absence of shading?

Multiple Inventions, Species, etc.

Disclosures in divisional and other types of dependent applications carved from basic or parent application as well as those in the parent application should be restricted to the respective claimed inventions, or as an alternative the dependent application may be printed with the customary identifying information, an abstract, and the claims. The alternative printing should include proper reference to the parent document. The abbreviated printing should be used only if the parent precedes the dependent application in issue. (A copy of the parent or basic patent would be supplied along with the abbreviated patent in response to orders for the latter.)

Cancellation of Descriptive Material

Descriptive material deemed superfluous or unessential for a clear understanding of the disclosed invention should be omitted, however, if such material is presented in the application, the Examiner should require cancellation in the first Office action. This will provide applicant with an opportunity to traverse the requirement prior to final rejection. Cancellation may be deferred until the presence of allowable subject matter is indicated by the Examiner.

Laudatory language, exhaustive descriptions of prior art, unessential statements of objects and lengthy statements of environment should be omitted from, or reduced to bare essentials in the application descriptive material. Lengthy descriptions of items that are obvious and well known to those skilled in the art should be avoided. A mere statement that such items are known and conventional should be adequate in most instances, however, if doubt exists reference may be made to disclosures in specific documents for support. Likewise lengthy descriptions regarding use should be avoided. Procedures for testing should not ordinarily be described. Biological studies and case histories should ordinarily not be included in the descriptive material since they can be presented in affidavit form.

Objects—Abstracts—Summary

State the primary object of the invention and if essential a limited number of secondary objects—all should be brief.

The abstract and statement of object(s) appear to satisfy the requirements in Rules 73 and 77, a separate summary is deemed unnecessary.

The abstract should be limited to the technical disclosure that is *new in the art* to which the invention pertains.

Sectionalized Disclosure

Headings should be provided in patent applications to set off different portions, such as Abstract, Discussion of Prior Art, Background of Invention, Technical Disclosure of Invention, Additional Species of Invention, and the like. Cancellation of subject matter not pertinent to the claimed invention will be facilitated if the descriptive material is so organized.

In order to make the most of computer capabilities of the future, specifications should provide "indicators" which can be readily identified by the processing equipment. While this has general application it is illustrated below with regard to chemical disclosures.

Context indicators:

Set out in the specification
Reserved word paragraph
Heading such as—
Utility
Starting material
Process
Final-Products
Chemical-Compounds—Names (followed by a tabulated list)
Chemical-Compounds—Structures (followed by a tabulation of structures)
Chemical-Compounds—Notations (the tabulated list could be Wiswesser, UPAC, or Patent Office; transformation could be made later)

Miscellaneous

Words or phrases of high information content (as distinguished, for example, from the word "means") appearing in claims as well as in invention descriptions, should be given indicator symbols or printed in bold face type, or italicized, so that future manual searching by the Examiner and the public will be made easier. A capability will exist for easier keyboarding for full text analysis for computer based information.

Where an elaborate expression appears in the descriptive material or claims it should be designated, for example, as "Definition 1" and later reference to the definition should be made with the designator.

Applications that include drawings should include a list of elements and the associated reference numerals for the elements comprising the invention.

EDWARD J. BRENNER,
Commissioner of Patents.

Approved:
JOHN F. KINCAID,
Assistant Secretary for Science and Technology.

Published in 34 F.R. 524; Jan. 16, 1969

[859 O.G. 1 (Jan. 16, 1969)]

---

(64) GUIDELINES FOR INCORPORATION BY REFERENCE IN PATENT APPLICATIONS

An application for a patent may incorporate essential material by reference to a United States patent, or an allowed U.S. application, subject to the conditions set out below. Essential material* is defined as that which is necessary (7) to support the claims, or (2) for adequate disclosure of the invention (35 U.S.C. 112). Material which is essentisl to the referencing application may not be incorporated by reference to patents issued by foreign countries or to non-patent publications. Essential material may not be incorporated by reference to a patent or application which itself incorporates essential material by reference.

The referencing application must include (1) an abstract, (2) a brief summary of the invention, (3) an identification of the referenced patent or application, (4) at least one view in the drawing in those applications admitting of a drawing, and (5) one or more claims. Where appropriate it would be advisable to direct particular attention to specific portions of the referenced patent or application.

If an application is filed with a complete disclosure, essential material may be cancelled by amendment and the *same* material substituted by reference to a patent or a pending and commonly owned allowed application in which the issue fee has been paid. The amendment must be accompanied by an affidavit executed by the applicant or his attorney or agent of record stating that the material cancelled from the application is the *same* material that has been incorporated by reference.

If an application incorporates essential material by reference to a U.S. patent or a pending and commonly owned allowed U.S. application for which the issue fee has been paid, applicant will be required prior to examination to furnish the Patent Office with a copy of the referenced material together with an affidavit executed by the applicant or his attorney or agent of record stating that the copy consists of

*Non-essential subject matter may be incorporated by reference to patents issued by the United States or foreign countries, prior filed commonly owned patent applications filed in the United States, and non-patent publications for purposes of indicating the background of the invention or illustrating the state of the art.

the *same* material incorporated by reference in the referencing application.

If an application incorporates essential material by reference to a U.S. patent or a pending and commonly owned application other than one in issue with the fee paid, applicant will be required prior to examination to amend the disclosure of the referencing application to include the material incorporated by reference. The amendment must be accompanied by an affidavit executed by the applicant or his attorney or agent of record stating that the amendatory material consists of the *same* material incorporated by reference in the referencing application.

EDWARD J. BRENNER,
Commissioner.

Approved: Jan. 15, 1969.

JOHN F. KINCAID,
Assistant Secretary for Science and Technology.

Published in 34 F.R. 883; Jan. 18, 1969

[859 O.G. 346]

---

(65) INCORPORATION BY REFERENCE—FILING DATE

In clarification of the Notice of December 30, 1968, appearing in the OFFICAL GAZETTE of February 11, 1969, the following amplification is made.

The filing date of any application wherein essential material is incorporated by reference to a foreign patent or to a publication will not be affected because of the presence of such reference. In such a case, as well as any other case which improperly incorporates essential material by reference, the applicant will be required to amend the disclosure to include the material incorporated by reference. The amendment must be accompanied by an affidavit executed by the applicant or his attorney or agent of record stating that the amendatory material consists of the *same* material incorporated by reference in the referencing application.

ERRATUM

Attention is directed to the error in the above-mentioned notice appearing at 859 O.G. 346. Please delete the phrase, "a U.S. patent or", which was erroneously printed in the second line of the last paragraph.

RICHARD A. WAHL,
Mar. 7, 1969. *Assistant Commissioner.*

[A Notice covering this same subject, in slightly different form, has been published in 34 F.R. 5555, Mar. 22, 1969.]

[861 O.G. 680]

---

(66) PHOTOCOPIES OF APPLICATIONS

Many of the patent application papers received by the Patent Office are copies of the original, ribbon copy. These are acceptable if, in the opinion of the Office, they are legible and permanent. Legibility includes ability to be photocopied and photomicrographed so that suitable reprints can be made. This requires a high contrast, with black lines and a white background. Gray lines and/or a gray background sharply reduce photo reproduction quality.

Applicants should make every effort to file patent applications in a form that is clear and reproducible. The Office may accept for filing date purposes papers of reduced quality but will require that acceptable copies be supplied for further processing.

Additionally, legibility of some application papers becomes impaired due to abrasion or aging of the printed material during examination and ordinary handling of the file. It may be necessary to require that clear, legible copies be furnished at later stages after filing, especially when preparing for issue.

RICHARD A. WAHL,
Jan. 28, 1970. *Assistant Commissioner.*

[872 O.G. 341]

---

(67) DIVISIONAL APPLICATION PAPERS

In the interest of expediting the processing of newly filed divisional applications, filed as a result of a restriction requirement, applicants are requested to include the appropriate Patent Office classification on the papers submitted.

The appropriate classification for the divisional application may be found in the office communication of the parent case wherein the requirement was made. It is suggested that this classification designation be placed in the upper right hand corner of the letter of transmittal accompanying these divisional applications.

RICHARD A. WAHL,
June 5, 1970. *Assistant Commissioner of Patents.*

[875 O.G. 702]

---

(68) REDUCTION IN PATENT APPLICATION DISCLOSURE

Notice of proposed Guidelines for Preparation of Patent Application Disclosure was published in the Federal Register of January 14, 1969 (34 F.R. 524), and in the OFFICIAL GAZETTE of the Patent Office of February 4, 1969 (859 O.G. 1). Comments from the general public were invited.

After consideration of comments received, new guidelines are deemed unnecessary, even though the average length of specification seems to be increasing. Applicants and their attorneys are reminded that 35 U.S.C. 112 requires inventions to be described "in such full, clear, concise, and exact terms as to enable any person skilled in the art * * * to make and use the same * * *." To satisfy the "concise" requirement, lengthy and unnecessary descriptive detail should be avoided.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Approved: July 24, 1970.

MYRON TRIBUS,
Assistant Secretary for Science and Technology.

[F.R. Doc. 70-9862; Filed, July 30, 1970; 8:45 a.m.]

35 F.R. 12296, July 31, 1970

[878 O.G. 1]

---

(69) NEW SOLE-JOINT DECLARATION FORM

The sole declaration form, PO–1147, announced by the notice of May 28, 1971 (887 O.G. 1840) has been revised to permit its use in either sole or joint inventor applications. The revised form comprises two pages to provide space for the additional information. In most applications, only page 1 will be necessary, in which case only that page need be signed and submitted. Page 2 would be used only where insufficient space is available on page 1 to fully furnish the required information. If page 2 is used, page 1 need not be signed, and *all* signatures should appear on page 2.

Where appropriate, the present "sole" declaration form may be used.

Specific instructions appear on the form.

Single copies of the new form are available without charge for direct use or for reproduction purposes and may be picked up from the receptionist in Building No. 3 of the Patent Office at Crystal Plaza. Written requests for the form will be filled only if directed to the Commissioner of Patents, Office of Information Services, Washington, D.C., 20231. A stamped, self-addressed envelope must be enclosed.

RICHARD A. WAHL,
Apr. 17, 1972. *Assistant Commissioner.*

[898 O.G. 738]

---

(70) DECLARATION AND POWER OF ATTORNEY FORM PO–1147 (REVISED) (3–72)

A revised Declaration and Power of Attorney Form, PO–1147 (Revised) (3–72), was recently issued and is supplied for use as a master copy for reproduction purposes. Experience with the revised form indicates that some confusion has been caused by the reference to "effective" filing date in item 600 of the form. The form is, therefore, being reprinted to delete the word "effective" from the descriptive language appearing in item 600. Persons who have copies of the old form may use the form by deleting the word "effective" before the

form is reproduced. In this connection it is noted that the word "effective" appears three times in item 600, once on page 1 and twice on page 2.

RICHARD A. WAHL,
Assistant Commissioner for Patent Examining.

Aug. 28, 1972.

[902 O.G. 1172]

---

(71) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 1—RULES OF PRACTICE IN PATENT CASES

Formula and Table Format

On February 2, 1972, notice of proposed rule making regarding the amendment of §§ 1.52 and 1.75 and the addition of a new § 1.58 of Title 37, Code of Federal Regulations, dealing with Formula and Table Format, was published in the Federal Register (37 F.R. 2520). Interested persons were given until April 30, 1972, to submit written comments, suggestions, or objections. Full and careful consideration was given to all written comments received. In view of these comments the proposed rule language has been revised. The revised rules do not now require that the formulas and tables be presented on separate bristolboard sheets but simply require them to be presented in the specification in a form suitable for photographic reproduction.

These rule changes are intended to facilitate the microfilming of application papers and the printing of patents which contain formulas and tables in the text.

Under the new rules the text of printed patents would continue to be typeset, with formulas and tables being photographically reproduced and appearing at their proper location in the text. This procedure should result in a reduction of printing errors and costs.

This rule change also makes more liberal the size of paper permissible in patent applications.

In consideration of the comments received and pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), Part 1 of Title 37, Code of Federal Regulations, is hereby amended as follows:

1. Section 1.52 is revised to read as follows:

§ 1.52 *Language, paper, writing, margins.*

(a) The specification and oath or declaration must be in the English language. All papers which are to become a part of the permanent records of the Patent Office must be legibly written or printed in permanent ink or its equivalent in quality. All of the application papers must be presented in a form having sufficient clarity and contrast between the paper and the writing or printing thereon to permit the production of readily legible copies in any number by use of photographic, electrostatic, photo-offset, and microfilming processes. If the papers are not of the required quality, substitute typewritten or printed papers of suitable quality may be required.

(b) The application papers (specification, including claims, oath, or declaration, papers as provided for in §§ 1.42, 1.43, 1.47, etc.) and also papers subsequently filed, must be plainly written on but one side of the paper. The size of all sheets of paper should be 8 to 8½ by 10½ to 13 inches (20.3 to 21.6 cm. by 26.6 to 33.0 cm.). A margin of 1½ inches (3.8 cm.) must be reserved on the left-hand side and on the top of each page of the specification, including claims. The lines must not be crowded too closely together; typewritten lines should be double spaced. The pages of the specification, including claims, should be numbered consecutively, starting with 1, the numbers being placed in the center of the bottom margins.

(c) Any interlineation, erasure, or cancellation or other alteration of the application papers as filed must have been made before the application was signed and sworn to or declaration made, and should be dated and initialed or signed by the applicant in a marginal note or footnote on the same sheet of paper to indicate such fact. No such alterations are permissible after execution of the application papers. (See § 1.56.)

2. A new § 1.58 is added to read as follows:

§ 1.58 *Chemical and mathematical formulas and tables.*

(a) The specification, including the claims, may contain chemical and mathematical formulas, but shall not contain drawings or flow diagrams. The description portion of the specification may contain tables; claims may contain tables only if necessary to conform to 35 U.S.C. 112.

(b) All tables and chemical and mathematical formulas in the specification, including claims, and amendments thereto, must be on pure white durable paper, the surface of which is calendered and smooth, in order to permit use as camera copy when printing any patent which may issue. A good grade of bond paper is acceptable; watermarks should not be prominent. India ink or its equivalent, or solid black typewriter ribbon must be used to secure perfectly black solid lines.

(c) To facilitate camera copying when printing, the width of formulas and tables as presented should be limited normally to 5 inches (12.7 cm.) so that it may appear as a single column in the printed patent. If it is not possible to limit the width of a formula or table to 5 inches (12.7 cm.), it is permissible to present the formula or table with a maximum width of 10¾ inches (27.3 cm.) and to place it sideways on the sheet, in which case the formula or table will appear printed across both columns of the page in the printed patent. Typewritten characters used in such formulas and tables must be from a block (nonscript) type font or lettering style having capital letters which are at least 0.085 inch (2.2 mm.) high (elite type). Hand lettering must be neat, clean, and have a minimum character height of 0.085 inch (2.2 mm.). A space at least ¼ inch (6.4 mm.) high should be provided between the formulas and tables and the text. Tables should have the lines and columns of data closely spaced to conserve space, consistent with high degree of legibility.

§ 1.75 *[Amended]*

3. Section 1.75 is amended by adding at the end of paragraph (d)(1) the expression "(See § 1.58(a).)."

Effective date. These amendments shall become effective on January 1, 1973, and will apply to applications filed after that date.

RICHARD A. WAHL,
Acting Commissioner of Patents.

Approved: Oct. 12, 1972.

RICHARD O. SIMPSON,
Acting Assistant Secretary for Science and Technology.

[FR Doc. 72-17727 Filed 10-17-72; 8:48 am]

Published in 37 FR 21994, Oct. 18, 1972

[975 O.G. 255]

PRIORITY APPLICATIONS

(72) REISSUE APPLICATIONS—FOREIGN PRIORITY

A "claim" for the benefit of an earlier filing date in a foreign country under 35 U.S.C. 119 must be made in a reissue application even through such a claim was made in the application on which the original patent was granted. However, no additional certified copy of the foreign application is necessary. The procedure is similar to that for "Continuing Applications" in the last paragraph of MPEP 201.14(b).

The heading on printed copies will not be carried forward to the reissue from the original patent. Therefore, it is important that the file wrapper be endorsed under "Claims Foreign Priority."

RICHARD A. WAHL,
Acting Superintendent Patent Examining Corps.

[807 O.G. 579 (Oct. 20, 1964)]

---

(73) FILING OF PRIORITY PAPERS

In view of the shortened periods for prosecution leading to allowances, it is recommended that priority papers be filed as early as possible. Although Rule 55 permits the filing of priority papers up to and including the date for payment of the final fee, it is advisable that such papers be filed promptly after filing the application. Frequently priority papers are found to be deficient in material respects such as, for example, the failure to include the correct certified copy and there is not sufficient time to remedy the deficiency. Occasionally a new oath may be necessary where the original oath omits the reference to the foreign filing date for which the benefit is claimed. The early filing of priority papers would thus be advantageous to applicants in that it would afford time to

explain any inconsistencies that exist or to supply any additional documents that may be necessary.

It is also suggested that a pencil notation of the serial number of the corresponding U.S. application be placed on the priority papers.

RICHARD A. WAHL,
Dec. 1, 1965. *Assistant Commissioner.*

[821 O.G. 1261]

---

(74) EFFECTIVE DATE OF UNITED STATES PATENT

In section 706.02, delete penultimate paragraph.

Rewrite section 715.01 to read:

The effective date of a United States Patent for use as a prior art reference is not affected by the foreign filing date to which the patentee may be entitled under 35 U.S.C. 119. *In re Hilmer*, 833 O.G. 13, 149 USPQ 480 (CCPA 1966); *Lilly et al.* v. *Brenner*, 153 USPQ 95 (C.A.D.C. 1967). The reference patent is effective as of the date the application for it was filed in the United States (35 U.S.C. 102(e) and 103). *Hazeltine Research, Inc. et al.* v. *Brenner*, 824 O.G. 8 (U.S. Supreme Court 1965).

RICHARD A. WAHL,
Apr. 5, 1967. *Assistant Commissioner.*

[838 O.G. 1]

---

(75) PATENT HEADINGS

As a service to the public, beginning with the issue of January 16, 1968, the heading of the printed patent will include all identifying parent data of continuation-in-part applications as is now the practice in continuation, divisional, substitute, and reissue applications. It should be noted, however, that inclusion of this information in the heading does not necessarily indicate that the claims are entitled to the benefit of the earlier filing date.

The above practice will not change the procedure with regard to assignments as set forth in the first sentence of paragraph 2 of Section 306 of the M.P.E.P.

RICHARD A. WAHL,
Dec. 18, 1967. *Assistant Commissioner.*

[846 O.G. 337]

---

(76) CHAINS OF CONTINUING APPLICATIONS

In view of the decision of the Court of Customs and Patent Appeals in *In re Henriksen* (158 USPQ 224) the application of 35 U.S.C. 120 will no longer be limited to a chain of three successively filed continuing cases.

Accordingly, Change Notice 12–8 is rescinded.

RICHARD A. WAHL,
Aug. 9, 1968. *Assistant Commissioner of Patents.*

[854 O.G. 559]

---

(77) FOREIGN PRIORITY OF CONTINUING APPLICATION

If the Examiner is aware of the fact that the parent of a continuing application has fully complied with the requirements of 35 U.S.C. 119 and is therefore entitled to the benefit of the filing date of an earlier filed foreign application, he should direct it to the applicant's attention in an Office action, as in the following exemplary language:

"Applicant is reminded that in order to be entitled to priority based on papers filed in parent application Serial No. _____ under 35 U.S.C. 119, a claim for such priority must be made in this application. In making such claim, applicant may simply call attention to the fact that a certified copy of the foreign application is in the parent application (M.P.E.P. 201.14(b))."

RICHARD A. WAHL,
Aug. 30, 1968. *Assistant Commissioner.*

[855 O.G. 1]

(78) GERMANY: NEW REQUIREMENT FOR SUBMISSION OF COPY OF ORIGINAL APPLICATION IN CONVENTION CASES

Under Section 27 of the German Patent Law which came into effect October 1, 1968, all applicants submitting a claim of priority in Germany under the Paris Union will be required to submit a copy of the application upon which the claim for priority is based. The U.S. Patent Office has been advised by the German Office that the copy need *not* be certified correct by the Office in which the application was originally filed.

Accordingly, for U.S. applicants, one method of complying with the new law would be to accompany the German filing with a copy of the prior U.S. applications as filed. This copy can be produced by the applicant himself.

If the applicant does not submit the copy at the time of filing, the German Office will issue, within two months after the German filing, a request to submit the copy. Failure to submit the required copy within two months after notification results in loss of the priority claim.

With respect to application on file in Germany prior to October 1, 1968, the following applies:

Copies of the original application will not be required for those applications already on file if the serial number of the application on which the priority claim is based had been communicated to the German Patent Office prior to October 1, 1968.

With regard to applications on file prior to October 1, 1968, for which the U.S. serial number is communicated after October 1, 1968, the request for the copy of the U.S. application will be made together with the notice preceding the laying open to public inspection of the file of the German application.

GERALD D. O'BRIEN,
Jan. 13, 1968. *Assistant Commissioner.*

[859 O.G. 345]

---

(79) PROPOSED IMPLEMENTATION OF INVENTOR'S CERTIFICATE LEGISLATION

[37 CFR Part 1]

Serial Number and Filing Date

Notice is hereby given that, pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), as amended October 5, 1971, P.L. 92–132, 85 Stat. 364, the Patent Office proposes to add a new paragraph (c) to § 1.55 (37 CFR 1.55(c)) to read as set forth below.

All persons are invited to present their views, objections, recommendations, or suggestions in connection with the proposed changes to the Commissioner of Patents, Washington, D.C. 20231 on or before February 12, 1973. No oral hearings will be held. Any written comments or suggestions may be inspected by any person, upon written request, a reasonable time after the closing date for submitting comments.

The proposed rule change is intended to implement P.L. 92–358, dated July 28, 1972, reprinted below, which accords rights of priority to applications where the claims for priority are based on earlier filed applications for inventor's certificates under certain conditions. This legislation now enables the United States to complete its ratification of the Stockholm Revision of the Paris Convention.

By the terms of the new legislation, inventor's certificates filed in a foreign country in which applicants have a right to apply, at their discretion, either for a patent or for an inventor's certificate may form the basis for rights of priority.

The new paragraph proposed below would insure that the right of priority would be granted for inventor's certificates involving subject matter for which an applicant in the country of earlier filing has an option to file for either a patent or inventor's certificate, as required by the new legislation. It should be noted that in certain countries which grant both patents and inventor's certificates to reward inventors, applicants may only be able to apply for inventor's certificates as to certain subject matter, generally pharmaceuticals, foodstuffs, and cosmetics.

The text of the proposed new paragraph is as follows:

§ 1.55 *Serial number and filing date of application.*

* * * * *

(c) An applicant may under certain circumstances claim priority on the basis of an application for an inventor's certificate in a country granting both inventor's certificates and patents. When an applicant wishes to claim the right of priority as to a claim or claims of the application on the basis of an application for an inventor's certificate in such a country under 35 U.S.C. 119, last paragraph (as amended July 28, 1972), the applicant or his attorney or agent, when submitting a claim for such right as specified in paragraph (b) of this section, shall include an affidavit or declaration including a specific statement that, upon an investigation, he has satisfied himself that to the best of his knowledge the applicant, when filing his application for the inventor's certificate, had the option to file an application either for a patent or an inventor's certificate as to the subject matter of the identified claim or claims forming the basis for the claim of priority.

ROBERT GOTTSCHALK,
Approved: Nov. 21, 1972. *Commissioner of Patents.*

RICHARD O. SIMPSON,
Acting Assistant Secretary
for Science and Technology.

PUBLIC LAW 92-358, JULY 28, 1972

To carry into effect a provision of the Convention of Paris for the Protection of Industrial Property, as revised at Stockholm, Sweden, July 14, 1967.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That section 119 of title 35 of the United States Code, entitled "Patents," is amended by adding at the end thereof the following paragraph:

"Applications for inventors' certificates filed in a foreign country in which applicants have a right to apply, at their discretion, either for a patent or for an inventor's certificate shall be treated in this country in the same manner and have the same effect for purpose of the right of priority under this section as applications for patents, subject to the same conditions and requirements of this section as apply to applications for patents, provided such applicants are entitled to the benefits of the Stockholm Revision of the Paris Convention at the time of such filing."

SEC. 2. Subsection 102(d) of title 35 of the United States Code is amended to read as follows:

"(d) the invention was first patented or caused to be patented, or was the subject of an inventor's certificate, by the applicant or his legal representatives or assigns in a foreign country prior to the date of the application for patent in this country on an application for patent or inventor's certificate filed more than twelve months before the filing of the application in the United States, or."

SEC. 3. (a) Section 1 of this Act shall take effect on the date when Articles 1-12 of the Paris Convention of March 20, 1883, for the Protection of Industrial Property, as revised at Stockholm, July 14, 1967, come into force with respect to the United States and shall apply only to applications thereafter filed in the United States.

(b) Section 2 of this Act shall take effect six months from the date when Articles 1-12 of the Paris Convention of March 20, 1883, for the Protection of Industrial Property, as revised at Stockholm, July 14, 1967, come into force with respect to the United States and shall apply to applications thereafter filed in the United States.

Published in 37 FR 25172, Nov. 28, 1972

[905 O.G. 684]

DRAWINGS

(80) PHOTOPRINTS AS DRAWINGS—FILING DATE ONLY

Effective September 1, 1964 the Application Branch is authorized and directed to accept all applications in which photoprints have been submitted in lieu of formal drawings, and to forward them to the Examiner, who will notify the applicant immediately that the application has been accepted *for filing only*, and that to be entitled to examination, the applicant must file formal drawings complying with Rule 84 within 60 days, and pay the cost of comparing the photoprints with the formal drawings.

A comparison charge of $10.00 per hour, with a minimum charge of $10.00 per application is hereby established. This charge may be applied against deposit accounts and authorization to charge such accounts should be included when the formal drawings are filed. For those who have no deposit account acceptance of the formal drawings will be contingent upon payment of the comparison charge within the period set.

This notice supersedes the notice of April 24, 1964, published May 26, 1964, in 802 O.G. 871.

EDWARD J. BRENNER,
July 16, 1964. *Commissioner.*

[805 O.G. 3]

(81) NEW DRAWINGS PREPARED BY PATENT OFFICE

In Section 608.02(x) the paragraphs headed "New Drawings Prepared by Patent Office" are cancelled and the following substituted therefor:

When new drawings have been required in pending applications and have been prepared by the Office draftsman, they are not sent to the applicant for his signature but a copy (print) is sent to him for his file. The name of the inventor(s) will be printed on the drawings by the Office draftsman.

In the event that the application is in condition for allowance, the application will be sent to Issue immediately after the drawing is prepared.

RICHARD A. WAHL,
Jan. 6, 1966. *Assistant Commissioner.*

[823 O.G. 1]

(82) TRANSFER OF DRAWINGS

In view of the recent amendment of Rule 138 to permit the express abandonment of patent applications by the attorney, there is no longer any sufficient reason for delaying the formal abandonment of an application after all the drawings thereof have been transferred to another case. Accordingly, effective February 1, 1967, no request to transfer all the drawings from a pending application will be granted unless and until a formal abandonment of the application has been filed. In order to insured copendency, such an abandonment may be so worded as to become effective only after the transfer of the drawings has taken place.

EDWARD J. BRENNER,
Dec. 15, 1966. *Commissioner.*

[834 O.G. 431]

(83) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 1—RULES OF PRACTICE IN PATENT CASES

Drawing Requirements

These rule changes are intended to facilitate the handling and filing of patent application drawings in the Patent Office. Changing the drawing size to 8½ by 14 inches will permit filing of the original drawings in the application file wrapper in the Patent Office. The new size will also permit the use of standard storage equipment, mailing envelopes, and copying equipment.

The revised rules will prohibit the use of names within the "sight" of the drawing, thereby making additional space available for illustration and reducing the number of formal objections and corrections required.

Permanently mounted color photographs in plant patent applications will be accepted. This should result in substantial savings to applicant.

Since no names or other identification will be permitted within the "sight" of the drawing, applicants are expected to use the space above and between the hole locations to identify each sheet of drawings (note § 1.84(1)). This identification may consist of the attorney's name and docket number or the inventor's name and case number and may include the sheet

number and the total number of sheets filed (for example, "sheet 2 of 4").

Notice of proposed rule making regarding revision of §§ 1.59, 1.84, 1.85, 1.123, and 1.165 and revocation of §§ 1.82 and 1.87 of Title 37, Code of Federal Regulations, relating to drawing requirements, was publishesd in the Federal Register of January 15, 1971 (36 F.R. 610). Interested persons were given an opportunity to participate in the rule making process through submission of comments in writing and at an oral hearing held on March 23, 1971.

Effective date. This revision shall become effective on the date of its publication in the Federal Register. However, until Jan. 1, 1972, drawings complying with the unrevised rules will also be accepted.

In consideration of the comments received and pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), Title 37 of the Code of Federal Regulations is hereby amended as follows:

1. Section 1.59 is revised to read as follows:

§ 1.59 *Papers of complete application not to be returned.*

Papers in a complete application, including the drawings, will not be returned for any purpose whatever. If applicants have not preserved copies of the papers, the Office will furnish copies at the usual cost.

§ 1.82 [*Revoked*]

2. Section 1.82 is revoked.

3. In § 1.84 the introductory text preceding paragraph (a) and paragraph (h) are revoked and paragraphs (a), (b), (c), (j), and (l) are revised to read as follows:

§ 1.84 *Standards for drawings.*

(a) *Paper and ink.* Drawings must be made upon pure white paper of a thickness corresponding to two-ply or three-ply bristol-board. The surface of the paper must be calendered and smooth and of a quality which will permit erasure and correction with India ink. India ink, or its equivalent in quality, must be used for pen drawings to secure perfectly black solid lines. The use of white pigment to cover lines is not acceptable.

(b) *Size of sheet and margins.* The size of a sheet on which a drawing is made must be exactly 8½ by 14 inches. One of the shorter sides of the sheet is regarded as its top. The drawing must include a top margin of 2 inches and bottom and side margins of one-quarter inch from the edges, thereby leaving a "sight" precisely 8 by 11¾ inches. Margin boarder lines are not permitted. All work must be included within the "sight." The sheets may be provided with two ¼-inch-diameter holes having their centerlines spaced eleven-sixteenths inch below the top edge and 2¾ inches apart, said holes being equally spaced from the respective side edges.

(c) *Character of lines.* All drawings must be made with drafting instruments or by a process which will give them satisfactory reproduction characteristics. Every line and letter must be absolutely black and permanent; the weight of all lines and letters must be heavy enough to permit adequate reproduction. This direction applies to all lines however fine, to shading, and to lines representing cut surfaces in sectional views. All lines must be clean, sharp, and solid, and fine or crowded lines should be avoided. Solid black should not be used for sectional or surface shading. Freehand work should be avoided wherever it is possible to do so.

• • • • •

(h) [*Revoked*]

• • • • •

(j) *Arrangement of views.* All views on the same sheet must stand in the same direction and should, if possible, stand so that they can be read with the sheet held in an upright position. If views longer than the width of the sheet are necessary for the clearest illustration of the invention, the sheet may be turned on its side so that the two-inch margin is on the right-hand side. One figure must not be placed upon another or within the outline of another.

• • • • •

(l) *Extraneous matter.* An inventor's, agent's, or attorney's name, signature, stamp, or address, or other extraneous matter, will not be permitted upon the face of a drawing, within or without the margin, except that identifying indicia (attorney's docket number, inventor's name, number of sheets, etc.) should be placed within three-fourths inch of the top edge and between the hole locations defined in paragraph (b) of this section. Authorized security markings may be placed on the drawings provided they be outside the illustrations and are removed when the material is declassified.

• • • • •

4. Section 1.85 is revised to read as follows:

§ 1.85 *Informal drawings.*

The requirements of § 1.84 relating to drawings will be strictly enforced. A drawing not executed in conformity thereto, if suitable for reproduction, may be admitted but in such case the drawing must be corrected or a new one furnished, as required. The necessary corrections or mounting will be made by the Office upon applicant's request or permission and at his expense. (See §§ 1.21 and 1.165.)

§ 1.87 [*Revoked*]

5. Section 1.87 is revoked.

6. In § 1.123, paragraph (a) is revised to read as follows:

§ 1.123 *Amendments to the drawing.*

(a) No change in the drawing may be made except by permission of the Office. Permissible changes in the construction shown in any drawing may be made only by the Office. A sketch in permanent ink showing proposed changes, to become part of the record, must be filed. The paper requesting amendments to the drawing should be separate from other papers.

• • • • •

7. In § 1.165, paragraph (b) is revised to read as follows:

§ 1.165 *Drawings.*

• • • • •

(b) The drawing may be in color and when color is a distinguishing characteristic of the new variety, the drawing must be in color. Two copies of color drawings must be submitted. Color drawings may be made either in permanent water color or oil, or in lieu thereof may be photographs made by color photography or properly colored on sensitized paper. Permanently mounted color photographs are acceptable. The paper in any case must correspond in size, weight and quality to the paper required for other drawings. See § 1.84. Nonpermanently mounted copies will be correctly mounted at applicant's expense, § 1.21(1).

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Approved: May 25, 1971.

JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

[FR Doc. 71-7504 Filed 5-27-71; 8:49 am]

Published in 36 F.R. 9774; May 28, 1971

[887 O.G. 1840]

---

(84) GRAPHIC SYMBOLS FOR PATENT DRAWINGS

Rule 84(g) of the Rules of Practice in Patent Cases indicates that graphic drawing symbols and other labeled representations may be used for conventional elements where appropriate, subject to approval by the Office. Also, suitable legends may be used, or may be required, in proper cases.

The Rules of Practice pamphlet has, since the turn of the century, included a section entitled "Symbols for Draftsman" showing various symbols which may be used on patent application drawings. Although these symbols still reflect current practice they are somewhat limited in number and scope. A more complete set of symbols might be beneficial to both the Office and the public since it would foster uniformity of presentation, and more informative drawings. However, for the Office to develop and maintain a substantially complete listing of all graphic drawing symbols would be both difficult and time-consuming.

Therefore, since the American National Standards Institute Inc., 1430 Broadway, New York, N.Y., 10018, publishes a series of publications relating to graphic symbols under its Y32 and Z32 headings, the Office is calling the attention of patent applicants to these symbols for their consideration and use where appropriate in patent drawings. The below listed

publications have been reviewed by the Office and the symbols therein are considered to be generally acceptable in patent drawings. Although the Office will not "approve" all of the listed symbols as a group because their use and clarity must be decided on a case-by-case basis, these publications may be used as guides when selecting graphic symbols. Overly specific symbols should be avoided. Symbols with unclear meanings should be labeled for clarification. As noted in Rule 84(g), the Office will retain final authority to approve the use of any particular symbol in any particular case.

The reviewed publications are the following:

Y32.2–1970. Graphic Symbols for Electrical and Electronics Diagram	$11.50
Y32.10–1967. Graphic Symbols for Fluid Power Diagrams	3.00
Y32.11–1961. Graphic Symbols for Process Flow Diagrams in the Petroleum and Chemical Industries	2.00
Y32.14–1962. Graphic Symbols for Logic Diagrams	4.75
Z32.2.3–1949 (R1953). Graphic Symbols for Pipe Fittings, Valves and Piping	2.00
Z32.2.4–1949 (R1953). Graphic Symbols for Heating, Ventilating and Air Conditioning	2.00
Z32.2.6–1950. Graphic Symbols for Heat-Power Apparatus	2.00

No change in the Rules of Practice is considered necessary at this time.

The above list of publications will be included in the Manual of Patent Examining Procedure.

RICHARD A. WAHL,
May 19, 1972. *Assistant Commissioner.*

[899 O.G. 1230]

EXAMINATION OF APPLICATIONS

(85) INFORMAL APPLICATIONS OF FOREIGN APPLICATIONS

This Notice is of special interest to attorneys and agents prosecuting applications on inventions originating abroad.

Many applications filed in this Office correspond in form and substance to the requirements (regulations) of countries foreign to the United States. Since they were not originally drafted to comply with our Rules of Practice, especially those based on 35 U.S.C. 112, the first examination cannot be the full and complete one contemplated under current examining procedures. This first examination is necessarily limited, under MPEP 702.01, to pointing out the informalities and citing the results of a search, the search being based upon the invention so far as it can be understood from the foreign type of claims, often coupled with a somewhat generalized disclosure. Since U.S. Patent Office policy is to accord equal treatment to *all* cases regardless of origin, current examining procedures as explained in the address reprinted in 803 O.G. 893, subject these applications to final determination on the second action. It is obviously to applicant's advantage to *file* the application with an adequate disclosure and with claims which conform to the U.S. Patent Office usages and requirements. This should be done whenever possible. If, however, due to the pressure of a Convention deadline or other reasons, this is not possible, applicants are urged to submit *promptly, preferably within three months after filing,* a preliminary amendment which corrects the obvious informalities. The informalities should be corrected to the extent that the disclosure is readily understood and the claims to be initially examined are in proper form, particularly as to dependency, and otherwise clearly define the invention. "New matter" must be excluded from these amendments since preliminary amendments do not enjoy original disclosure status, section 608.04(b), MPEP.

EDWARD J. BRENNER,
Mar. 4, 1965. *Commissioner of Patents.*

[812 O.G. 1295]

(86) TERMINAL DISCLAIMERS FILED IN APPLICATIONS

In view of the increasing number of terminal disclaimers being filed in pending applications under 35 U.S.C. 253, it is considered advisable to point out the practice to be followed in such cases.

Since the claims of pending applications are subject to cancellation, amendment or remembering, a terminal disclaimer directed to a particular claim or claims will not be accepted; the disclaimer must be of a terminal portion of the term of the entire patent to be granted. The statute does not provide for conditional disclaimers and accordingly, a proposed disclaimer which is made contingent on the allowance of certain claims cannot be accepted. The disclaimer should identify the disclaimant and his interest in the application and should specify the date when the disclaimer is to become effective. An acceptable form for such a disclaimer is as follows:

To the Commissioner of Patents:

Your petitioner, John Doe, residing at _____ in the county of _____ and State of _____ represents that he is (here state exact interest of the disclaimant and, if he is an assignee, set out the liber and page or reel and frame where the assignment is recorded) of application No. _____, filed on the _____ day of _____ 19 __ for _____. Your petitioner hereby disclaims all that portion of the term of any patent to be issued on the said application subsequent to _____ 19__.

The disclaimer must be accompanied by the statutory fee.

EDWARD J. BRENNER,
Apr. 26, 1965. *Commissioner.*

[814 O.G. 359]

(87) PRACTICE RE: TECHNICAL REJECTIONS

In the interest of reducing the number of technical rejections and expediting the prosecution of applications the following changes will be instituted effective June 1, 1965:

1. The inclusion of a negative limitation shall not, in itself, be considered a sufficient basis for objection to or rejection of a claim. However, if such a limitation renders the claim unduly broad or indefinite or otherwise results in a failure to point out the invention in the manner contemplated by 35 U.S.C. 112, an appropriate rejection should be made.

2. When materials recited in a claim are so related as to constitute a proper Markush group, they may be recited either in the conventional manner heretofore permitted, or alternatively. For example, if ". . . wherein R is a material selected from the group consisting of A, B, C and D" is a proper limitation then ". . . wherein R is A, B, C or D" shall also be considered proper.

3. The use of Markush claims of diminishing scope shall not, in itself, be considered a sufficient basis for objection to or rejection of claims. However, if such a practice renders the claims indefinite or if it results in undue multiplicity, an appropriate rejection shall be made. This change does not in any way affect the substantive law governing the treatment of Markush claims. The foregoing practice with respect to Markush claims of diminishing scope will be effective on an experimental basis until December 1, 1965, and, if it proves satisfactory, will then be adopted permanently.

EDWARD J. BRENNER,
Apr. 30, 1965. *Commissioner.*

[814 O.G. 715]

(88) "SPECIAL" EXAMINING PROCEDURE FOR CERTAIN NEW APPLICATIONS

The trial of "Special" Examining Procedure for Certain New Applications as announced in 812 O.G. 953 and later modified by 817 O.G. 423 indicates the desirability of making such procedure available on a standard operating basis. Accordingly, an additional category is being added to the list of situations in which an application may be advanced out of turn for examination, Rule 102 and M.P.E.P. 708.01 and 708.02. The M.P.E.P. will be rewritten to incorporate this practice.

Certain further modifications have been incorporated into the conditions and procedure; most importantly, the new case now may be a continuing or divisional application, the prohibition against an application having an earlier effective U.S. filing date has been removed. Original limits on filing date and on number in any Group have previously been deleted.

The full text of conditions and procedures now applicable appears below, and the notices in 812 O.G. 953 and 817 O.G. 423 are accordingly rendered obsolete.

REQUIREMENTS AND PROCEDURES TO EFFECT ACCELERATED EXAMINATION OF NEW APPLICATIONS

Requirements Precedent to Grant of Special Status for Accelerated Examination

A new application (one which has not received any examination by the examiner) may be granted special status provided that applicant (and this term includes applicant's attorney or agent) concurrently:

(a) Submits a written petition to make special.

(b) Agrees that the application will not include more than ten claims at any time. Should the pending application contain more than ten claims when the request for special status is filed, an amendment must be proposed at that time to reduce the number to not more than ten, which amendment will be entered only if the special status is granted. All of the claims presented for this special prosecution must obviously be directed to a single invention.

(c) Submits a statement that a pre-examination search was made, and specifying whether by the inventor, attorney, professional searchers, etc., and listing the field of search by class and subclass, publication, chemical abstracts, foreign patents, etc.

(d) Submits one copy each of the references deemed most closely related to the subject matter encompassed by the claims.

(e) Submits a detailed discussion of the references, which discussion points out, with the particularity required by Rule 111(b) and (c), how the claimed subject matter is distinguishable over the references. Where applicant indicates an intention of overcoming one of the references by affidavit under Rule 131, the affidavit must be submitted before the application is taken up for action, but in no event later than one month after request for special status.

In those instances where the request for this special status does not meet all the prerequisites set forth above, applicant will be notified and the defects in the request will be stated. The application will remain in the status of a new application awaiting action in its regular turn. In those instances where a request is defective in one or more respects, applicant will be given *one* opportunity to perfect the request. If perfected, the request will then be granted.

Once a request has been granted, prosecution will proceed according to the procedure set forth below; there is no provision for "withdrawal" from this special status.

Special Examining Procedure

1. The new application, having been granted special status as a result of compliance with the requirements set out in the section titled "Requirements Precedent to Grant of Special Status for Accelerated Examination," supra, will be taken up by the Examiner before all other categories of applications except those clearly in condition for allowance and these with set time limits, such as Examiner's Answers, Decisions on Motions, etc., and will be given a complete first action which will include *all* essential matters of merit as to all claims. The Examiner's search will be restricted to the *subject matter encompassed by the claims.* This first action will terminate with the setting of a three-month shortened period for response.

2. During the three-month period for response, applicant is encouraged to arrange for an interview with the Examiner in order to resolve, with finality, as many issues as possible. In order to afford the Examiner time for reflective consideration before the interview, applicant or his representative should cause to be placed in the hands of the Examiner at least one working day prior to the interview, a copy (clearly denoted as such) of the amendment that he proposes to file in response to the Examiner's action. Such a paper will not become a part of the file, but will form a basis for discussion at the interview.

3. Subsequent to the interview, or responsive to the Examiner's first action if no interview was had, applicant will file his "record" response. The response at this stage, to be proper, must be restricted to the rejections, objections, and requirements made. Any amendment which would require broadening the search field will be treated as not a proper response.

4. The examiner will within one month from the date of receipt of applicant's formal response, take up the application for final disposition. This disposition will constitute either a final action which terminates with the setting of a three-month period for response, or a notice of allowance. No further response will be made by the Examiner after a final action with the exceptions that (a) an Examiner's Answer may be prepared in response to an appeal brief, or (b) the application may be passed to issue.

5. A personal interview after final Office action will not be permitted unless requested by the Examiner. However, telephonic interviews will be permitted where appropriate for the purpose of correcting any minor matters which remain outstanding.

RICHARD A. WAHL,
Dec. 14, 1965. *Assistant Commissioner.*

[822 O.G. 2]

---

(89) PROSECUTION OF PATENT APPLICATIONS AFTER FINAL ACTION

Experience over the past several months indicates the need to re-emphasize certain areas of examining procedure outlined In Assistant Commissioner Wahl's address to the Patent Examining Corps on September 24, 1965 (819 O.G. 893). Certain paragraphs or parts thereof are quoted below, with emphasis added.

"It is planned, accordingly, that prosecution before the examiner should be essentially concluded after applicant's first response and the examiner's reply thereto. *No amendments to claims, nor new claims, should be entered after final rejection, except in rare instances, unless it is readily apparent that these place the case in condition for allowance or materially reduce or simplify the issues for appeal. Also, no amendments should be entered which raise new issues or require further search.* However, if a response to a final rejection is received and it would clearly place the case in condition for allowance except for minor matters which could be cleared up over the telephone, the examiner should telephone applicant or his attorney or agent to try to promptly clear up such matters."

• • • • •

"In general, a very complete and thoroughly considered first response by applicant will be in order because it will determine the form and content of the claims, not only for the final consideration by the examiner, but also by the Board of Appeals if appeal be taken. In this connection, attention is directed to suggestions set forth in notices in the OFFICIAL GAZETTE in recent years that applicant should include in his application at the time of filing, or after the first complete action, the most detailed claim that he would be willing to accept as well as the broadest claim to which he considers himself entitled."

• • • • •

"A third change in procedure is that in all cases wherein the examiner decides that a requirement for restriction to one invention or for election of species must be made, a telephone call will be made to applicant or his representative advising him of the situation and requesting a prompt election by return telephone call if the decision cannot be made immediately. When the election is made by telephone, the examiner in his action will make of record the complete requirement and will state the date of the call, the name of the applicant or his representative who made the election, and the result of the election. Such restriction or election requirements will, of course, be subject to written requests for reconsideration (traverse) in accordance with Rule 143. If no reply is received to the examiner's telephoned requirement within a reasonable period, about three working days, he will proceed to make the requirement in a written action as heretofore."

In further implementation of these precedures, the following paragraphs add further details to take effect on the date

of this notice and to apply to all Office actions taken or written, and to all communications received from applicant, on or after the effective date.

FINAL ACTION AND PRE-APPEAL

The prosecution of an application before the examiner should ordinarily be concluded with the final action. However, one personal interview and one written response by applicant may be entertained after such final action if circumstances warrant. Thus, only one request by applicant for a personal interview after final should be granted, but in exceptional circumstances, a second personal interview may be initiated by the *examiner* if in his judgment this would materially assist in placing the application in condition for *allowance.* Any amendment submitted under Rule 116(a) and Rule 116(b) *for purposes of appeal* should be presented in the first response after final action and will be considered as heretofore; if any amendments are submitted after the examiner's reply to such first response, they should be refused entry as not warranted at this stage of prosecution, even though such amendments allegedly present rejected claims in better condition for appeal. Similarly, no affidavit should be considered if presented later than with the first response after final unless a showing is made under Rule 116(b).

The practice will be continued of advising applicant by means of the recently introduced form letter (POL–303) as to the disposition of proposed amendments to the claims and as to the effect of any argument or affidavit submitted in the *first* response after final action.

If a response subsequent to the first response after final action is received before appeal and which *on its face* clearly places the application in condition for allowance, it should be entered and a notice of allowability (POL–255) promptly sent to applicant; if such subsequent response does not *on its face* place the application in condition for allowance, it should not be considered further (unless, in the examiner's judgment, there are only minor matters which could be readily cleared up in a telephone interview leading to a notice of allowance) and should be refused entry. A form letter (POL–309) will be used for notification that such subsequent responses do not place the application in condition for allowance.

Requests for extension of the shortened statutory period for reply after final action, under Rule 130(b), will be considered by the Primary Examiner and if granted will be for not more than one month; petitions for further extensions will be decided by the Commissioner or his designees in this matter. It should be noted that, under Rule 181(f), the filing of a Rule 181 petition will not stay the period for reply to an Examiner's action which may be running against an application.

APPEAL AND POST-APPEAL

The record on appeal should be essentially the record before the examiner at the time appeal is taken. Thus, no amendments, except under Rule 193(b), presented after appeal has been taken should be entered *for purposes of appeal, and no exception should be made to this,* see Rule 116(c). Amendments, arguments, or affidavits filed concurrently with or of even date with appeal notice will be construed as filed after appeal for the purpose of this procedure, even though they may be the first response to the final action. In accordance with Rule 195, affidavits or exhibits submitted after the case has been appealed should be considered for entry *only if applicant makes the necessary showing* why they were not earlier presented; Rule 195 should be strictly construed in this regard. If after appeal has been taken, a paper is presented which *on its face* clearly places the application in condition for allowance, such paper should be entered and a notice of allowability (POL–255) promptly sent to applicant. If such paper does not *on its face* place the application in condition for allowance, it should not be considered further (unless in the examiner's judgment there are only minor matters which could be readily cleared up in a telephone interview leading to a notice of allowance) and proposed amendments therein should not be entered. Notification that such papers do not place the application in condition for allowance will be made by use of a form letter (POL–309).

In accordance with the above, the Brief should be directed to the claims and to the record of the case as they appeared upon filing the appeal, but it may, of course, withdraw from consideration on appeal any claims or issues as desired by appellant.

Upon timely filing of a Brief, it will be referred to the examiner for his consideration of its propriety as to the appeal issues and for preparation of an Examiner's Answer if the Brief is proper and the application is not allowable. The Examiner's Answer will normally be of the shortened type referring to and relying on the final action; it may withdraw rejection of claims or any objection or requirement as desired by the examiner. No new ground of rejection or objection should be incorporated in the Examiner's Answer *without express approval in each case by the Group Manager.*

RESTRICTION AND ELECTION

A basic policy of the streamlined examining program is that the second action on the merits should be made final. In those applications wherein a requirement for restriction or election is accompanied by the rejection of linking or generic claims, such action will be considered to be an action on the merits and the next action by the examiner should be made final. It may thus be to applicant's advantage to make a telephone election in such cases prior to the first action.

Requirements for restriction or election will continue to be governed by existing criteria. However, in stating a requirement for restriction hereafter there should be no citation of patents to show separate status or classification or utility. The separate inventions should as heretofore be identified by a grouping of the claims with a short description of the total extent of the invention claimed in each group, specifying the type or relationship of each group as by stating the group is drawn to process, or to subcombination, or to product, etc., and should indicate the classification or separate status of each group, as for example, by class and subclass.

The period for response to a requirement for restriction or election, where there is no rejection of claims, will hereafter be set at 30 days.

MANUAL OF PATENT EXAMINING PROCEDURE

Procedures currently set forth in the Manual of Patent Examining Procedure which may be in conflict with the above are superseded by those anounced above. Change Notices and replacement pages will be issued in due course.

MANUAL OF CLERICAL PROCEDURE

This information will also be incorporated in the Manual of Clerical Procedure.

RICHARD A. WAHL.

[824 O.G. 4 (Mar. 1, 1966)]

---

(90) DOUBLE PATENTING

In view of the uncertain situation which has arisen as a result of recent decisions dealing with "double patenting" it is thought to be advisable to restate the practice which should be followed in this area, particularly as regards the effect of terminal disclaimers. The term "double patenting" is properly applicable only to cases involving two or more applications and/or patents of the same inventive entity and should not be applied to situations involving commonly owned cases of different inventive entities. Sole and joint inventors cannot constitute a single entity, nor do two or more sets of joint inventors constitute a single entity if any individual is included in either set who is not also included in the other.

If two or more cases are filed by a single inventive entity, and if the expiration dates of the patents, granted or to be granted, are the same, either because of a common issue date or by reason of the filing of one or more terminal disclaimers, two or more patents may properly be granted, if the claims do not overlap, even though the subject matter to which the claims of one case are directed may be obvious in view of the subject matter claimed in the other case. *In re Robeson,* 1964 C.D. 561, 141 USPQ 485; *In re Kaye,* 1964 C.D. 630, 141 USPQ 829. Claims overlap within the meaning of this statement if it is possible for them to be infringed by the same process, machine, manufacture, or composition of matter. Cross reading is not necessary to constitute such an overlap.

Overlapping claims should not be allowed in cases filed by the same inventive entity if they are directed to identical inventive concepts, or if the concept to which one set of claims is directed would be obvious in view of that to which the other set is directed. This is true regardless of the relative filing dates of the cases or the relative scope of the claims.

In situations involving cases filed by different inventive entities, regardless of ownership, Sections 102 and 103 of

35 U.S.C. preclude the granting of two or more patents when directed to identical inventive concepts or when one of the concepts would be obvious in view of the other. A terminal disclaimer can have no effect in this situation since the basis for refusing more than one patent is not connected with any extension of monopoly.

In view of 35 U.S.C. 135, it is necessary to determine priority of invention whenever two different inventive entities are claiming a single inventive concept, and this determination should ordinarily be made before any patent is issued. This is true regardless of ownership, and the provision of Rule 201(c) that interferences will not be declared or continued between commonly owned cases unless good cause is shown therefor does not mean that two patents are to be allowed in such cases, but that the common assignee should be called on to state which of the entities involved is prior to the other in date of invention.

Accordingly, the assignee of two or more cases of different inventive entities, containing conflicting claims, should be called on to maintain a line of demarcation between them. If such a line is not maintained then, when one of the cases is in condition for allowance, claims covering the conflicting subject matter should be suggested as provided in Rule 203, care being taken to insure that such claims cover all the conflicting matter and the assignee should be called on to state which entity is the prior inventor of that subject matter and to limit the claims of the other application accordingly. If the assignee does not comply with this requirement and presents the interfering claims in both cases, an interference should be declared, attention being directed to Rule 208 if there is a common attorney. If suggested claims are not presented within the time allowed, rejection should be made on the ground of disclaimer as indicated in Rule 203(b).

In the event that a common assignee, after taking out a patent on one of two or more applications, for the first time presents claims in a pending application which are not patentably distinct from claims of the patent, the claims of the application should be rejected on the ground that the assignee, by taking out the patent at a time when the application was not claiming the patented invention, is estopped to contend that the patentee is not the prior inventor.

If a patent is inadvertently issued on one of two commonly owned applications by different inventive entities which at the time when the patent issued were claiming inventions which are not patentably distinct, the assignee should be called on to make a determination of priority as in the case of pending applications and, if no election is made, an interference should be declared. An election of the applicant as the first inventor should not be accepted without a complete (not terminal) disclaimer of the conflicting claims in the patent.

EDWARD J. BRENNER,
Jan. 9, 1967. *Commissioner.*

[834 O.G. 1615]

---

(91) NON-FINAL SECOND ACTION REJECTION PRACTICE

Experience since September 1, 1966, indicates that the non-final second action rejection practice announced on a trial basis at 829 O.G. 1755 (M.P.E.P. Change Notice 10—1) has worked out satisfactorily for both the Office and the applicants. Effective immediately, that practice as restated below will be followed on a regular basis.

Second actions on the merits will not be made final where the examiner introduces a new ground of rejection not necessitated by amendment of the application by the applicant. Further, in carrying out this policy, a second action on the merits in any application will not be made final if it includes a rejection of any claim not amended by applicant where that rejection relies on newly cited art. Also, amendments complying with objections or requirements as to form are to be permitted after final action in accordance with Rule 116(a).

RICHARD A. WAHL,
Jan. 30, 1967. *Assistant Commissioner.*

[835 O.G. 715]

---

(92) SPECIAL EXAMINING PROCEDURE FOR CERTAIN NEW APPLICATIONS

The practice of granting special status to certain new applications as set forth in the Notice of December 14, 1965, 822 O.G. 2, is modified to the extent indicated below in the case where the Office determines that all of the claims presented are not obviously directed to a single invention.

Where the claims in a case are directed to more than one invention, an election without traverse will be a prerequisite to the grant of special status.

The election may be made by applicant at the time of filing the petition for special status. Should applicant fail to include an election with the original papers or petition and the Office determines that a requirement should be made, the established telephone restriction practice will be followed.

If otherwise proper, examination on the merits will proceed on claims drawn to the elected invention.

If applicant refuses to make an election without traverse, the application will not be further examined at that time. The petition will be denied on the ground that the claims are not directed to a single invention, and the application will await action in its regular turn.

Divisional applications directed to the non-elected inventions will *not* automatically be given special status based on papers filed with the petition in the parent case. Each such application must meet on its own all requirements for the new special status.

RICHARD A. WAHL,
Mar. 21, 1967. *Assistant Commissioner.*

[837 O.G. 667]

---

(93) NEW FIRST ACTION PROCEDURE

Effective January 2, 1968, a new practice involving the use of a revised form for the first page of the first Office Action will be instituted. The use of this new form will introduce some new practices and procedures and will terminate the "Interview Practice Preliminary to Notice Under 35 U.S.C. 132" announced August 1, 1967, at 841 O.G. 1.

The heading of the revised form containing the address and application identification will have a completely revised format to facilitate future pre-action addressing by automatic typewriter.

Under the new procedure, the Examiner will signify on the revised form certain information including the period set for response, any attachments, and, in a "summary of action," the position taken on all claims.

The new procedure will also allow the Examiner, in the exercise of his professional judgment, to indicate that a discussion with applicant's representative may result in agreements whereby the application may be placed in condition for allowance and that the Examiner will telephone the representative within about two weeks. Under this practice the applicant's representative can be adequately prepared to conduct such a discussion. Any resulting amendment may be made either by the applicant's attorney or agent or by the Examiner in an Examiner's Amendment. It should be recognized that when extensive amendments are necessary it would be preferable if they were filed by the attorney or agent of record, thereby reducing the professional and clerical workload in the Patent Office and also providing the file wrapper with a better record, including applicant's arguments for allowability as required by Rule 111.

RICHARD A. WAHL,
Dec. 11, 1967. *Assistant Commissioner.*

[845 O.G. 1205]

---

(94) MODIFICATION OF NOTICE OF JANUARY 31, 1967

The practice set forth in the notice of January 31, 1967, entitled "Double Patenting" (834 O.G. 1615), is modified to the extent that when a single inventive entity is involved a terminal disclaimer will be accepted to avoid a double patenting rejection even if the claims overlap, if the claims which would otherwise be subject to such rejection could not have been allowed in the other application or patent, and if the terminal disclaimer further provides that the patent shall expire immediately if it ceases to be commonly owned with the other application or patent.

EDWARD J. BRENNER,
Feb. 14, 1968. *Commissioner.*

[848 O.G. 1]

(95) CONTINUATIONS—RES JUDICATA REJECTIONS

Some confusion exists in the interpretation of the established Office policy regarding the use of *res judicata* rejections. To clarify the Manual on this point the following changes are made—

The second paragraph of MPEP 201.07 is rewritten to read:

At any time before the patenting or abandonment of or termination of proceedings on his earlier application, an applicant may have recourse to filing a continuation in order to introduce into the case a new set of claims and to establish a right to further examination by the primary Examiner.

The last two sentences of MPEP 201.11 are deleted. MPEP 706.03(w) is rewritten to read:

A prior adjudication against the inventor on the same or similar claims constitutes a proper ground of rejection as *res judicata*. See *Ex parte Budde*, 150 USPQ 469; 828 O.G. 409. The rejection should be used only when the earlier decision was a decision of the Board of Appeals or any of the reviewing courts, and when the time for further court review has expired and no such review has been sought, or, if filed, the review action is terminated. The timely filing of a second application copending with an earlier application does not preclude the use of *res judicata* as a ground of rejection for the second application claims.

When making a rejection on *res judicata*, action should ordinarily be made also on the basis of prior art.

RICHARD A. WAHL,
Mar. 18, 1968. *Assistant Commissioner.*

[849 O.G. 277]

---

(96) GUIDELINES FOR CONSIDERING DISCLOSURES OF UTILITY IN DRUG CASES

On December 5, 1967 the text of certain guidelines which the Patent Office proposed to adopt in the examination of applications for drugs, was published in the OFFICIAL GAZETTE **(845 O.G. 1). A hearing was had on January 16, 1968, and all persons, who desired to, were invited to attend and to submit their views, objections, recommendations or suggestions. The following guidelines are being published after consideration of all the material and opinions, both written and oral, which were submitted in response to that invitation.**

EDWARD J. BRENNER,
Mar. 19, 1968. *Commissioner of Patents.*

General

These guidelines are set down to provide uniform handling of applications disclosing drug or pharmaceutical utility. They are intended to guide patent examiners and patent applicants as to criteria for utility statements. They deal with fundamental questions and are subject to revision and amendment if future case law indicates this to be necessary.

The following two basic principles shall be followed in considering matters relating to the adequacy of disclosure of utility in drug cases:

(1) The same basic principles of patent law which apply in the field of chemical arts shall be applicable to drugs, and

(2) The Patent Office shall confine its examination of disclosure of utility to the application of patent law principles, recognizing that other agencies of the government have been assigned the responsibility of assuring conformance to the standards established by statute for the advertisement, use, sale or distribution of drugs.[1]

A drug is defined by 21 U.S.C. 321(g)

> The term "drug" means (A) articles recognized in the official United States Pharmacopeia, official Homeopathic Pharmacopeia of the United States, or official National Formulary, or any supplement to any of them; and (B) articles intended for use in the diagnosis, cure, mitigation, treatment, or prevention of disease in man or other animals; and (C) articles (other than food) intended to affect the structure or any function of the body of man or other animals; and (D) articles intended for use as a component of any articles specified in clause (A), (B), or (C); but does not include devices or their components, parts or accessories.

In addition, compositions adapted to be applied to or used by human beings, e.g., cosmetics, dentifrices, mouthwashes, etc., may be treated in the same manner as drugs subject to the conditions stated.

Any proof of a stated utility or safety required pursuant to these guidelines may be incorporated in the application as filed, or may be subsequently submitted by affidavit if and when required. The Patent Office, in reaching its own independent decisions on questions of utility and how to use under 35 U.S.C. 101 and 112, will continue to avail itself of assistance and information from the Secretary of Health, Education, and Welfare as authorized by 21 U.S.C. 372(b), when necessary.

In accordance with the basic principles set forth above, the following procedures shall be followed in examining patent applications in the drug field with regard to disclosures relating to utility.

35 U.S.C. 101

Utility must be definite and in currently available form,[2] not merely for further investigation or research but commercial availability is not necessary. Mere assertions such as "therapeutic agents,"[3] "for pharmaceutical purposes,"[4] "biological activity,"[5] "intermediates,"[6] and for making further unspecified preparations are regarded as insufficient.

If the asserted utility of a compound is believable on its face to persons skilled in the art in view of the contemporary knowledge in the art, then the burden is upon the examiner to give adequate support for rejections for lack of utility under this section.[7] On the other hand, incredible statements[8] or statements deemed unlikely to be correct by one skilled in the art[9] in view of the contemporary knowledge in the art will require adequate proof on the part of applicants for patents.

Proof of utility under this section may be established by clinical or *in vivo* or *in vitro* data, or combinations of these, which would be convincing to those skilled in the art.[10] More particularly, if the utility relied on is directed *solely* to the treatments of humans, evidence of utility, if required, must generally be clinical evidence.[11] Although animal tests may be adequate where the art would accept these as appropriately correlated with human utility.[12] If there is no assertion of human utility,[13] or if there is an assertion of animal utility,[14] operativeness for use on standard test animals is adequate for patent purposes.

Exceptions exist with respect to the general rule relating to the treatment of humans. For example, compositions whose properties are generally predictable from a knowledge of their components, such as laxatives, antacids and certain topical preparations, require little or no clinic proof.[15]

Although absolute safety is not necessary to meet the utility requirement under this section, a drug which is not sufficiently safe under the conditions of use for which it is said to be effective will not satisfy the utility requirement.[16] Proof of

---

[1] *In re Krimmel*, 48 CCPA 1116, 292 F.2d 948, 130 USPQ 215; *In re Hartop et al.*, 50 CCPA 780, 311 F.2d 249, 135 USPQ 419.

[2] *Brenner* v. *Manson*, 383 U.S. 519, 148 USPQ 689.

[3] Cf. *In re Lorenz et al.* 49 CCPA 1227, 305 F.2d 875, 134 USPQ 312, cf. *Ex parte Brockmann et al.*, 127 USPQ 57.

[4] *In re Diedrich*, 50 CCPA 1355, 318 F.2d 946, 138 USPQ 128.

[5] *In re Kirk et al.*, 54 CCPA 1119, 153 USPQ 48; *Ex parte Lanham*, 135 USPQ 106.

[6] *In re Joly et al.*, 54 CCPA 1159, 153 USPQ 45; *In re Kirk et al.*, 54 CCPA 1119, 153 USPQ 48.

[7] *In re Gazave*, 54 CCPA 1524, 154 USPQ 92.

[8] *In re Citron*, 51 CCPA 852, 325 F.2d 248, 139 USPQ 516; *In re Oberweger*, 28 CCPA 749, 115 F.2d 826, 47 USPQ 455; *Ex parte Moore et al.*, 128 USPQ 8.

[9] *In re Ruskin*, 53 CCPA 872, 354 F.2d 395, 148 USPQ 221; *In re Pottier*, 54 CCPA 1293, 153 USPQ 407; *In re Novak et al.* 49 CCPA 1283, 306 F.2d 924, 134 USPQ 335. See also, *In re Irons*, 52 CCPA 938, 340 F.2d 974, 144 USPQ 351.

[10] *In re Irons*, 52 CCPA 938, 340 F.2d 924, 144 USPQ 351; *Ex parte Paschall*, 88 USPQ 131; *Ex parte Pennell et al.*, 99 USPQ 56; *Ex parte Ferguson*, 117 USPQ 229; *Ex parte Timmis*, 123 USPQ 581.

[11] *Ex parte Timmis*, 123 USPQ 581.

[12] *In re Hartop et al.*, 50 CCPA 780, 311 F.2d 249, 135 USPQ 419; *Ex parte Murphy*, 134 USPQ 134.

[13] Cf. *Blicke* v. *Treves*, 44 CCPA 753, 241 F.2d 718, 112 USPQ 472; *In re Krimmel*, 48 CCPA 1116, 292 F.2d 948, 130 USPQ 215; *In re Dodson*, 48 CCPA 1125, 292 F.2d 943, 130 USPQ 224; *In re Hitchings*, 52 CCPA 1141, 342 F. 2d 80, 144 USPQ 637.

[14] *In re Bergel et al.*, 48 CCPA 1102, 292 F.2d 955, 130 USPQ 206; *Ex parte Melvin*, 155 USPQ 47.

[15] *Ex parte Harrison et al.*, 129 USPQ 172; *Ex parte Lewin*, 140 USPQ 70.

[16] *In re Hartop et al.* 50 CCPA 780, 311 F.2d 249, 135 USPQ 419.

safety shall be required only in those cases were adequate reasons can be advanced by the examiner for believing that the drug is unsafe, and shall be accepted if it establishes a reasonable probability of safety.

35 U.S.C. 112

A mere statement of utility for pharmacological or chemotherapeutic purposes may raise a question of compliance with Section 112, particularly ". . . as to enable any person skilled in the art to which it pertains . . . to use the same." If the statement of utility contains within it a connotation of how to use, and/or the art recognizes that standard modes of administration are contemplated, Section 112 is satisfied. [17] If the use disclosed is of such nature that the art is unaware of successful treatments with chemically analogous compounds, a more complete statement of how to use must be supplied than if such analogy were not present. [18] It is not necessary to specify the dosage or method of use if it is obvious to one skilled in the art that such information could be obtained without undue experimentation. [17]

With respect to the adequacy of disclosure that a claimed genus possesses an asserted utility representative examples together with a statement applicable to the genus as a whole will ordinarily be sufficient if it would be deemed likely by one skilled in the art, in view of contemporary knowledge in the art, that the claimed genus would possess the asserted utility. [19] Proof of utility will be required for other members of the claimed genus only in those cases where adequate reasons can be advanced by the examiner for believing that the genus as a whole does not possess the asserted utility. Conversely, a sufficient number of representative examples, if disclosed in the prior art will constitute a disclosure of the genus to which they belong.

In the case of mixtures including a drug as an ingredient, or mixtures which are drugs, or methods of treating a specific condition with a drug, whether old or new, a specific example should ordinarily be set forth, which should include the organism treated. In appropriate cases, such an example may be inferred from the disclosure taken as a whole and/or the knowledge in the art (e.g., gargle).

Where the claimed compounds are capable of several different utilities and one use is adequately described in accordance with these guidelines, additional utilities will be investigated for compliance with Sections 101 and 112 only if not believable on their face to those ordinary skill in the art in view of the contemporary knowledge of the art. Failure to meet these standards may result in a requirement to cancel such additional utilities. [20]

[17] Cf. *In re Johnson*, 48 CCPA 733, 282 F.2d 370, 127 USPQ 216; *In re Hitchings et al.*, 52 CCPA 1141, 342 F.2d 80, 144 USPQ 637.

[18] *In re Mourcu et al.*, 52 CCPA 1363, 345 F. 2d 595, 145 USPQ 452; *In re Schmidt et al.*, 54 CCPA 1577, 153 USPQ 640.

[19] *In re Oppenauer*, 31 CCPA 1248, 143 F.2d 974, 62 USPQ 297; *In re Cavallito et al.*, 48 CCPA 711, 282 F.2d 357, 127 USPQ 202; *In re Cavallito et al.*, 48 CCPA 720, 282 F.2d 363, 127 USPQ 206; *In re Schmidt*, 48 CCPA 1140, 293 F.2d 274, 130 USPQ 404; *In re Cavallito*, 49 CCPA 1335, 306 F.2d 505, 134 USPQ 370; *In re Surrey*, 54 CCPA 855, 370 F.2d 349, 151 USPQ 724; *In re Lund et al.*, 54 CCPA 1361, 153 USPQ 625.

[20] *Ex parte Lanham*, 121 USPQ 223; *Ex parte Moore et al.*, 128 USPQ 8; *In re Citron*, 51 CCPA 852, 325 F.2d 248, 139 USPQ 516; *In re Gottlieb et al.*, 51 CCPA 1114, 328 F.2d 1016, 140 USPQ 665.

[849 O.G. 567]

(97) APPLICATIONS TO BE TAKEN UP SPECIAL

Hereafter the existence of the following facts will place the application concerned in the category of special cases, i.e., those to be advanced out of regular order for examination.

Once a case is taken up for action by an Examiner according to its effective filing date, it should be treated as special by any Examiner, Art Unit or Group to which it may subsequently be transferred. Exemplary situations includes: (1) new cases transferred as the result of a telephone election, and (2) cases transferred as the result of a timely response to any official action.

RICHARD A. WAHL,
Feb. 29, 1968. *Assistant Commissioner.*

[850 O.G. 4]

(98) SPECIAL EXAMINING PROCEDURE

The Special Examining Procedure whereby a new application may be granted special status and advanced for examination is hereby revised to remove the condition limiting the application to no more than ten claims. The petition for special status will be granted regardless of the number of claims pending in the application at any time provided all other remaining conditions of this program are met (see MPEP 708.02).

RICHARD A. WAHL,
June 12, 1968. *Assistant Commissioner.*

[852 O.G. 509]

(99) REJECTIONS NOT BASED ON PRIOR ART

The primary object of the examination of an application is to determine whether or not the claims define a patentable advance over the prior art. This consideration should not be relegated to a secondary position while undue emphasis is given to non-prior art or "technical" rejections. Effort in examining should be concentrated on truly essential matters, minimizing or eliminating effort on matters which may have played a part in the examination process in the past but which are not really critical. Where a major technical rejection is proper (e.g., lack of proper disclosure, undue breadth, utility, etc.) such rejection should be stated with a full development of the reasons rather than by a mere conclusion coupled with some stereotyped expression.

Generally speaking, the inclusion of (1) negative limitations and (2) alternative expressions, provided that the alternatively expressed elements are basically equivalents for the purpose of the invention, are permitted if no uncertainty or ambiguity with respect to the question of scope or breadth of the claim is presented.

The examiner has the responsibility to make sure the wording of the claims is sufficiently definite to *reasonably* determine the scope. It is applicant's responsibility to select proper wording of the claim, except to the extent that the selection of words makes the claims indefinite. Under no circumstances should a claim be rejected merely because the Examiner prefers a different choice of wording.

Rejections not based on prior art are explained in 706.03(a) to 706.03(y). IF THE ITALICIZED LANGUAGE IN THESE SECTIONS IS INCORPORATED IN THE REJECTION, THERE WILL BE LESS CHANCE OF A MISUNDERSTANDING AS TO THE GROUNDS OF REJECTION.

RICHARD A. WAHL,
July 23, 1968. *Assistant Commissioner.*

[853 O.G. 603]

(100) DOUBLE PATENTING AND TERMINAL DISCLAIMER

The practice concerning double patenting and the effect of a terminal disclaimer on such a rejection is set out below. The notices of January 9, 1967, and February 14, 1968, relating to this subject are hereby superseded except with reference to the practice described involving different inventive entities.

Claims should be rejected on double patenting only in cases involving two or more applications and/or patents of the same inventive entity and not in situations involving commonly owned cases of different inventive entities. Commonly owned cases of different inventive entities are to be treated in the manner set out in MPEP 804.03.

If two or more cases are filed by a single inventive entity, and if the expiration dates of the patents, granted or to be granted, are the same, either because of a common issue date or by reason of the filing of one or more terminal disclaimers, two or more patents may properly be granted provided the claims of the different cases are not drawn to the same invention (*In re Knohl*, 155 USPQ 586; *In re Griswold*, 150 USPQ 804).

Claims that differ from each other (aside from minor differences in language, punctuation, etc.), whether or not the difference is obvious, are not considered to be drawn to the same invention. In cases where the difference is obvious, terminal disclaimers are effective to overcome rejections on double patenting. However, such terminal disclaimers should

include a provision that the patent shall expire immediately if it ceases to be commonly owned with the other application or patent.

Where there is no such difference, the inventions are the same and a terminal disclaimer is ineffective.

EDWARD J. BRENNER,
Commissioner.

Feb. 18, 1969.

[860 O.G. 661]

---

(101) REVISED DESIGN PATENT PRACTICE

The following changes are being instituted in order to clarify the distinction between the ornamental design for an article being claimed in a design patent and its environment. These changes are to be followed in the examination of all design applications as of the date of this notice. It is suggested that applicants initiate compliance with these changes in all pending design applications.

The ornamental design which is being claimed must be shown in solid lines in the drawing. Dotted lines for the purpose of indicating unimportant or immaterial features of the designed article are no longer permitted. There are no portions of a design which are immaterial or unimportant. In re *Blum*, 852 O.G. 1045; 153 USPQ 177.

The title of the article being claimed in a design patent must correspond to the name of the article shown in solid lines in the drawing.

RICHARD A. WAHL,
Assistant Commissioner.

Feb. 26, 1969.

[860 O.G. 999]

---

(102) "MERE FUNCTION OF MACHINE"—REJECTION

In view of the decision of the Court of Customs and Patent Appeals in *In re Tarczy-Hornoch* appearing at 158 USPQ 141, process or method claims will no longer be subject to a rejection by Patent Office examiners solely on the ground that they define the inherent function of a disclosed machine or apparatus. Accordingly, the subject matter of MPEP 706.03(r) is inapplicable and hereby cancelled.

RICHARD A. WAHL,
Assistant Commissioner.

Feb. 10, 1969.

[861 O.G. 343]

---

(103) FINAL REJECTION—FIRST ACTION

The claims of a new application may be finally rejected in the first Office action in those situations where (1) the new application is a continuing application of, or a substitute for, an earlier application, and (2) all claims of the new application (a) are drawn to the same invention claimed in the earlier application, and (b) would have been properly finally rejected on the art of record in the next Office action if they had been entered in the earlier application. A first action final rejection in a continuation-in-part application is not proper where any claim includes subject matter not present in the parent case.

RICHARD A. WAHL,
Assistant Commissioner.

Mar. 20, 1969.

[861 O.G. 1011]

---

(104) CLAIM INTERPRETATION

The notice of January 15, 1968, appearing in the OFFICIAL GAZETTE of February 13, 1968 (847 O.G. 331) and concerned with statements relating to the scope of the invention claimed in patent applications, is hereby rescinded.

RICHARD A. WAHL,
Assistant Commissioner.

Sept. 12, 1969.

[867 O.G. 1]

---

(105) EXAMINATION OF PATENT APPLICATIONS ON COMPUTER PROGRAMS

Notice of Rescission of Guidelines

Notice regarding the adoption by the Patent Office of guidelines for the examination of patent applications on computer programs was published in the Federal Register of October 22, 1968 (33 F.R. 15600), and in the OFFICIAL GAZETTE of the Patent Office of October 22, 1968 (855 O.G. 829).

In view of the decision by the U.S. Court of Customs and Patent Appeals in "In re Prater et al.," 162 USPQ 541, 866 O.G. 1034 (1969), the adopted guidelines are hereby rescinded, effective immediately. For the time being, adoption of new guidelines for the examination of patent applications is being deferred pending further judicial interpretation of the law on a case-by-case basis.

Consideration of "In re Prater et al.," has brought into question the advisability of issuing guidelines for the examination of patent applications on computer programs. Parties who desire to present their views, recommendations, or suggestions concerning such guidelines are invited to do so, by letter addressed to the Commissioner of Patents, Washington, D.C. 20231. Those parties who recommend the issuance of such guidelines are invited to submit comments concerning the proposed language of the guidelines.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Approved: October 3, 1969.

MYRON TRIBUS,
Assistant Secretary for Science and Technology.

[F.R. Doc. 6912194; Filed, Oct. 9, 1969, 8:48 a.m.]

Published 34 F.R. 15724, October 10, 1969

[868 O.G. 349]

---

(106) CERTAIN CASES

Reopening After Decision, Board of Appeals

Effective with the date of this notice the Commissioner of Patents will, on a trial basis, entertain petitions under § 1.198 of Title 37, Code of Federal Regulations (Patent Office Rule 198), to reopen certain cases in which an applicant has sought review under 35 U.S.C. 141 or 145. This procedure is restricted to cases which have been decided by the Board of Appeals and which are amendable to settlement without the need for going forward with the court proceeding. Such petitions will ordinarily be granted only in the following categories of cases:

1. When the decision of the Board of Appeals asserts that the rejection of the claims is proper because the claims do not include a disclosed limitation or because they suffer from some other curable defect, and the decision reasonably is suggestive that claims including the limitation or devoid of the defect will be allowable;

2. When the decision of the Board of Appeals asserts that the rejection of the claims is proper because the record does not include evidence of a specified character, and is reasonably suggestive that if such evidence were presented, the appealed claims would be allowable, and it is demonstrated that such evidence presently exists and can be offered; or

3. When the decision of the Board of Appeals is based on a practice, rule, law, or judicial precedent which, since the Board's decision, has been rescinded, repealed, or overruled.

Any such petition must be accompanied by the proposed amendment, evidence, or argument said to justify allowance of the claims. The petition further must point out how the case falls within one of the preceding categories. Failure to do so or failure of the case to qualify as coming within one of the categories will usually constitute bases for denying the petition. In any event, no case will be reopened unless it is for the consideration of matters not already adjudicated, and sufficient cause has been shown.

Such petitions will not be ordinarily entertained after the filing of the Commissioner's brief in cases in which review has been sought under 35 U.S.C. 141, or after trial in a 35 U.S.C. 145 case.

In the case of an appeal under 35 U.S.C. 141, if the petition is granted, steps will be taken to request the court to remand the case to the Patent Office and if so remanded the proposed amendments, evidence, and arguments will be entered of record in the application file for consideration, and further action will be taken by the Board of Appeals in the first instance or by the Examiner as may be appropriate. In the case of civil action under 35 U.S.C. 145, steps will be

taken for obtaining dismissal of the action without prejudice to consideration of the proposals.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Approved: Oct. 16, 1969.
MYRON TRIBUS,
Assistant Secretary for Science and Technology.

[F.R. Doc. 69-12674; Filed Oct. 22, 1969; 8:48 a.m.]

Published in 34 F.R. 17210, Oct. 23, 1969

[868 O.G. 1058]

---

(107) PROSECUTION AND DELIVERY OF AMENDMENTS

General

Many of the difficulties encountered in the prosecution of patent applications after final rejection may be alleviated if each applicant includes, at the time of filing or no later than the first response, claims varying from the broadest to which he believes he is entitled to the most detailed that he is willing to accept.

Prosecution After Final Rejection

To expedite the resolution of cases under final rejection, an amendment filed at any time after final rejection but before an appeal brief is filed, may be entered upon or after filing of an appeal provided the total effect of the amendment is to (1) remove issues for appeal, and/or (2) adopt Examiner suggestions. Of course, if the amendment necessitates a new search, raises the issue of new matter, presents additional claims without cancelling a corresponding number of finally rejected claims, or otherwise introduces new issues, it will not be entered. Examiners will continue to respond to all non-entered amendments after final rejection, and will indicate the status of each claim of record or proposed, including the designation of claims that would be entered on the filing of an appeal if filed in a separate paper. It should be noted that an amendment placing a case in condition for allowance will be enterable by the Examiner at any stage prior to forwarding the answer on appeal. Except where an amendment merely cancels claims and/or adopts Examiner suggestions, removes issues for appeal, or in some other way requires only a cursory review by the Examiner, compliance with the requirement of a showing under Rule 116(b) will be expected of all amendments after final rejection.

In accordance with prior practice, in order to prevent abandonment, a timely filed amendment after final rejection that reaches the Examiner near the end or after the expiration of the period for response, may be entered in part if this can be done to make the case allowable (e.g., a second amendment after final rejection filed on the last day of the response period, where no appeal has been filed and the amendment cancels all rejected claims and proposes to add claims, at least one of which is unpatentable, entry would be approved to the extent of cancelling the rejected claims and entering only the patentable claims).

Only one attorney-initiated personal interview will be permitted after final rejection. However, the Examiner may initiate an interview anytime he believes it would expedite the prosecution of the application.

Hand Delivery of Papers

For purposes of convenience in those cases where the attorney and the Examiner agree that a proposed amendment discussed during a *personal* interview would place the application in condition for allowance, the amendment may be left with the Examiner to become an official paper in the file without routing through the mail room, provided no additional fees are required. Where the case is under final rejection, if changes in the proposed amendment are necessary and these changes are not practical to be made by Examiner's Amendment, the attorney or a local associate will be permitted to hand deliver a corrected amendment to the Examiner, provided no additional fees are required and further that the amendment is submitted to the Examiner by the end of the next working day following the interview and within the period for response.

The Examiner who accepts these amendments will write "entry approved" in the left-hand margin of the first page of the amendment, date and initial the amendment, and then have it date stamped with the Group Stamp. For applications under final rejection acceptance of a hand delivered amendment will require the initials of a Primary Examiner.

The privilege of personal delivery of papers by attorneys to the Examining Groups is extended to requests for extensions of time in addition to amendments of the type referred to above.

RICHARD A. WAHL,
Nov. 10, 1969. *Assistant Commissioner.*

[869 O.G. 345]

---

(108) PETITION TO REVIVE PRACTICE

Effective immediately, a decision on a petition to revive an abandoned application will be based solely on whether a satisfactory showing has been made that the delay was unavoidable (35 U.S.C. 133). A petition to revive will not be considered unless the petition fee and a proposed response to the last Office action have been received (Rule 137).

The granting of a petition to revive does not serve in any way as a determination that the proposed response to the Office action is completely responsive. Revived applications will be forwarded to the examiner to determine the completeness of the proposed response. Such applications must be taken up *Special*. If the examiner determines that the response is complete, he should promptly take the case up for action. If the proposed response is not a complete response to the last Office action, the examiner should write a letter to the applicant informing him of the specific defects in his response and set a one-month time limit for applicant to complete his response. If the applicant does not complete his response within the set one-month limit, the application is again abandoned.

RICHARD A. WAHL,
Dec. 11, 1969. *Assistant Commissioner.*

[869 O.G. 1362]

---

(109) ENVIRONMENTAL QUALITY

In signing the National Environmental Policy Act on the first day of this decade, President Nixon declared, "The 1970's absolutely must be the years when America pays its debt to the past by reclaiming the purity of its air, its waters and our living environment." This landmark legislation declares that it is the continuing policy of the Federal Government to use all practicable means and measures to foster and promote the general welfare, create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans. The Act further directs that, to the fullest extent possible, the policies, regulations, and public laws of the United States shall be interpreted and administered in accordance with the policies set forth in this Act.

In accordance with the desires of the President and this mandate of the Congress, the Patent Office will accord "special" status to all patent applications for inventions which materially enhance the quality of the environment of mankind by contributing to the restoration or maintenance of the basic life-sustaining natural elements—air, water, and soil. In order that the Patent Office may implement this procedure, we request that all applicants desiring to participate in this program request that their applications be accorded "special" status. Such requests should be written, should identify the applications by serial number and filing date, and should be accompanied by affidavits or declarations under Rule 102 explaining how their inventions contribute to the restoration or maintenance of one of these life-sustaining elements.

WILLIAM E. SCHUYLER, JR.,
Jan. 29, 1970. *Commissioner of Patents.*

[871 O.G. 673]

---

(110) PETITION TO REVIVE PRACTICE—CLARIFICATION

In clarification of the notice of Dec. 11, 1969 (869 O.G. 1362), the practice set forth in the second paragraph thereof is limited to proposed "responses" *before* final rejection. While a response to a non-final action may be either an argument or an amendment under Rule 111, a response to a final

action "must include cancellation of, or appeal from the rejection of, each claim so rejected" under Rule 113.

Accordingly, in any case where a final rejection had been made, the proposed response required for consideration of a petition to revive must be either an appeal or an amendment that cancels all the rejected claims or otherwise prima facie places the application in condition for allowance.

In those situations where abandonment occurred because of the failure to file an appeal brief, the proposed response, required for consideration of a petition to revive, must include a brief accompanied by the proper fee.

RICHARD A. WAHL,
Feb. 20, 1970. *Assistant Commissioner.*

[873 O.G. 1]

---

(111) TIMELY PRESENTATION OF AFFIDAVITS OF DECLARATIONS UNDER RULES 131 AND 132

All affidavits or declarations under Rule 131 or 132 must be timely presented in order to be admitted.

Affidavits and declarations submitted prior to a final rejection will be considered timely.

An affidavit or declaration presented with a first response after final rejection for the purpose of overcoming a new ground of rejection or requirement made in the final rejection will be entered and considered without a showing under Rule 116(b).

No other affidavit or declaration, under Rule 131 or 132, presented after a final rejection, will be considered unless a satisfactory showing is made under Rule 116(b) or 195.

All admitted affidavits or declarations will be acknowledged and commented upon by the Examiner in his next succeeding action.

RICHARD A. WAHL,
July 9, 1970. *Assistant Commissioner of Patents.*

[877 O.G. 243]

---

(112) ABBREVIATED FIRST ACTIONS OF THE MERITS

Starting on or about February 1, 1971, and continuing for a trial period of up to twelve months, a newly developed form (PO–1142) will be used for first actions on the merits of patent applications involving claims subject to rejection and/or objection on statutory or other legal grounds.

The form is designed to furnish a clear, full, and complete first action including the reasons for rejection and/or objection together with such information and references as may be useful in judging the propriety of continuing the prosecution, all in accordance with the statute (35 U.S.C. 132); and it is intended to abridge the action with condensed language using essential words and phrases in abbreviated form, in order to expedite the prosecution and reduce the pendency time of applications awaiting examination. Where found necessary in exceptional cases, a regular action without the form will be used.

For abbreviation purposes, references referred to on the form will be designated by capital letters and identified on revised reference list PO–892, and their correlation as applied to the claims will be indicated by symbols illustrated and explained on the bottom of the form. Sections 100–103, and 112 of the patent statute are reproduced on the back of the form.

Summary sheet POL–326 will continue in use with all first actions, and has been revised to identify different parts of the sheet as "Part I" and "Part II." Form PO–1142 will be distinguished as "Part III," and if a second copy of the form is necessary and is used to complete the action it will be marked for distinction as "Part IIIa" (a regular typed page if annexed to an action with the form will be designated as "Part IV"). All parts of the action after Part I (Parts II, III, and IV) will each have numbered paragraphs starting with the numeral 1, and communications relating thereto may be properly identified by the number on the particular part (for example, paragraph 2 on Part III may be identified as paragraph III–2).

As noted, Form PO–1142 will be used only for first actions on the merits concerned with claims subject to rejection and/or objection on statutory or other legal grounds. It will not be used for any subsequent action nor a first action made final as in a continuing application.

Second actions on the merits will be final according to prevailing practice, and any reference referred to in these or subsequent actions will be identified by name or otherwise in conventional manner, not by capital letters as used on Form PO–1142. For this reason, use of conventional reference identification in response to all Office actions will be helpful.

Only one carbon copy of the action will be furnished in accordance with the Notice of October 21, 1970, entitled "Office Actions" and appearing in 880 O.G. 740.

All other Office policies, practices, and procedures remain in effect.

RICHARD A. WAHL,
Jan. 5, 1971. *Assistant Commissioner.*

[883 O.G. 2]

---

(113) AFTER FINAL REJECTION PRACTICE

[37 CFR Part 1]

Notice of Proposed Rule Making

Notice is hereby given that pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), the Patent Office proposes to amend Title 37 of the Code of Federal Regulations by revising §§ 1.116, 1.191, 1.192, and 1.193, and by adding § 1.130.

All persons interested in presenting their views and objections and recommendations in connection with the proposed changes are invited to do so on or before March 23, 1971, on which day a hearing will be held at 2 p.m., e.s.t., in Room 8C06, Building 2, 2011 Jefferson Davis Highway, Arlington, Va. All persons wishing to be heard orally are requested to notify the Commissioner of Patents of their intended appearance. Any written comments or suggestions may be inspected by any person upon written request a reasonable time after the closing date for submitting comments.

The proposed changes, if adopted, will provide a basis for a revised procedure for treating amendments filed after a final rejection. A proposed additional section is added to incorporate the existing practice relative to affidavits.

The proposed procedure will provide that all timely filed first amendments after final rejection be entered as a matter of right, subject to the limitation that additional claims will not be entered beyond the number that would result in the total number of claims under prosecution equalling the number of claims finally rejected. Only those second and subsequent amendments which cancel claims will be entered as a matter of right. The entry and treatment of any other amendments filed at this stage will be entirely within the discretion of the examiner.

A distinction will be made between first amendments after final rejection filed within 2 months from the date of the final rejection and those filed after that period.

A first amendment after final rejection filed within 2 months of the final rejection will receive a full and complete advisory action as soon as possible after its receipt in the Patent Office. Under these circumstances, the revised procedure would permit the filing of an appeal within the period for response to the final rejection or within 1 month from the date of the advisory action, whichever is later. However, if an appeal had been filed before the mailing of the advisory action, the appeal brief would not be due until 2 months after the date of the advisory action.

Amendments filed later than 2 months after the date of the final rejection in nonappeared cases may be answered at the examiner's discretion, but no additional time will be allowed for appeal. However, if an appeal is filed in these cases, a full and complete advisory action will be rendered and the time for filing the brief will be extended to expire 2 months from the date of the advisory action.

After jurisdiction of an application transfers to the Board of Appeals, no amendments will be considered for entry except those restricted to cancellation of claims or copying claims for purposes of interference.

If new issues are presented in the claims as amended or presented after final rejection, they will be rejected in the advisory action on the ground of being drawn to new issues. These rejections will be reviewable by the Board of Appeals as "adverse decisions of examiners" (35 U.S.C. 7).

The current practice of normally making the second action on the merits final and setting of a 3-month period for response will continue. However, the practice of granting an

automatic 1-month extension of time if an amendment is filed (notices of Aug. 7, 1967; 841 O.G. 1411 and of Sept. 26, 1968; 855 O.G. 1109) will be terminated, and extensions of time at this stage of the prosecution will not be encouraged. Further, any extension of time granted after a final rejection will not affect the 2-month period and the privilege of an advisory action.

The present policy concerning consideration of affidavits, declarations, and exhibits will remain unchanged.

Holding of interviews after final rejection will be at the primary examiner's discretion.

This procedure will also allow the examiner to prepare examiner's answers which simply refer to the final rejection or the advisory action in most instances.

The sections, if amended as proposed, would read as follows:

§ 1.116 *Amendments after final action.*

* * * * *

(b) A first amendment presented after final rejection will be entered and considered, but the total number of claims under prosecution may not exceed the total number finally rejected. Entry of second and subsequent amendments after final rejection will normally be limited to only those which cancel claims.

(c) A first amendment filed within 2 months after the date of the final rejection, or after appeal, will receive a full and complete advisory action. If not previously filed, an appeal may be filed in such cases within the period for response to the final rejection or within 1 month from the date of the advisory action, whichever is later. In those cases where an appeal was filed before the date of the advisory action, the appeal brief is due 2 months after the date of the advisory action.

(d) After jurisdiction of an appealed case passes to the Board of Appeals no amendments may normally be made (see § 1.191(d)). After decision on appeal, amendments can only be made as provided in § 1.198, or to carry into effect a recommendation under § 1.196.

(e) Amendments after final rejection shall not introduce new issues into the prosecution.

§ 1.130 *Affidavits, declarations, or exhibits after final rejection.*

Affidavits, declarations, or exhibits submitted with a first reply after final rejection for the purpose of overcoming a new ground of rejection or requirement made in the final rejection, shall be admitted and considered. No other affidavit, declaration, or exhibit presented after final rejection will be admitted and considered without a showing of good and sufficient reasons why they were not earlier presented.

§ 1.191 *Appeal to Board of Appeals.*

(a) Every applicant for a patent or for reissue of a patent, any of the claims of which have been twice rejected, or who has been given a final rejection (§ 1.113) may, upon the payment of the fee required by law, appeal from the decision of the primary examiner to the Board of Appeals within the time allowed for response. (See § 1.116(c).)

* * * * *

(d) The jurisdiction of an appealed case is retained by the primary examiner until the time for filing a reply to the examiner's answer (§ 1.193(b)) has expired, at which time the Board of Appeals will take jurisdiction of the same.

§ 1.192 *Appellant's brief.*

(a) The appellant shall, within 2 months from the date of the appeal, or within the time allowed for response to the action appealed from, or within the time allowed in an advisory action (§ 1.116(b)), whichever is later, file a brief, accompanied by the requisite fee. Said brief shall include all of the authorities and arguments on which he will rely to maintain his appeal, including a concise explanation of the invention which should refer to the drawing by reference characters, and a copy of the claims involved, at the same time indicating if he desires an oral hearing. Two extra copies of the brief are required if an oral hearing is requested. Upon a showing of sufficient cause the time for filing the brief may be extended to a date not later than 2 months after the original expiration date. Any longer or further extensions must be sought from the Commissioner. All requests for extensions must be filed prior to the expiration of the period sought to be extended.

* * * * *

§ 1.193 *Examiner's answer.*

* * * * *

(b) The appellant may file a reply brief directed only to such new points of argument as may be raised in the examiner's answer, within 1 month from the date of such answer. However, if the examiner's answer states a new ground of rejection appellant may file a reply thereto within 2 months from the date of such answer; such reply may include any amendment or material appropriate to the new ground.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Approved: January 22, 1971.

RICHARD O. SIMPSON,
Acting Assistant Secretary for Science and Technology.

[FR Doc. 71-1167 Filed 1-27-71; 8:47 a.m.]

Pub. in 36 F.R. 1356-57, Jan. 28, 1971

[883 O.G. 880]

---

(114) DEPOSIT OF MICROORGANISMS

Some inventions which are the subject of patent applications depend on the use of microorganisms which must be described in the specification in accordance with 35 U.S.C. 112. No problem exists when the microorganisms used are known and readily available to the public. When the invention depends on the use of a microorganism which is not so known and readily available, applicants must take additional steps to comply with the requirements of Section 112.

In re Argoudelis et al., 168 USPQ 99 (CCPA, 1970), accepted a procedure for meeting the requirements of 35 U.S.C. 112. Accordingly, the Patent Office will accept the following as complying with the requirements of Section 112 for an adequate disclosure of the microorganism required to carry out the invention:

(1) The applicant, no later than the effective U.S. filing date of the application, has made a deposit of a culture of the microorganism in a depository affording permanence of the deposit and ready accessibility thereto by the public if a patent is granted, under conditions which assure (*a*) that access to the culture will be available during pendency of the patent application to one determined by the Commissioner to be entitled thereto under Rule 14 of the Rules of Practice in Patent Cases and 35 U.S.C. 122, and (*b*) that all restrictions on the availability to the public of the culture so deposited will be irrevocably removed upon the granting of the patent;

(2) Such deposit is referred to in the body of the specification as filed and is identified by deposit number, name and address of the depository, and the taxonomic description to the extent available is included in the specification; and

(3) The applicant or his assigns has provided assurance of permanent availability of the culture to the public through a depository meeting the requirements of (1). Such assurance may be in the form of an averment under oath or by declaration by the applicant to this effect.

A copy of the applicant's contract with the depository may be required by the Examiner to be made of record as evidence of making the culture available under the conditions stated above.

RICHARD A. WAHL,
Apr. 29, 1971. *Assistant Commissioner.*

[886 O.G. 638]

---

(115) ENVIRONMENTAL QUALITY

The National Environmental Policy Act declares that it is a continuing policy of the Federal Government to use all

practicable means and measures to foster and promote the general welfare, create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans. The Act further directs that, to the fullest extent possible, the policies, regulations, and public laws of the United States shall be interpreted and administered in accordance with the policy set forth in the Act.

Following the enactment of the National Environmental Policy Act, the Patent Office initiated an Environmental Quality Program under which it accorded, upon request, "special" status to all patent applications for inventions which materially enhance the quality of the environment of mankind by contributing to the restoration or maintenance of the basic life-sustaining natural elements—air, water, and soil.

It seems apparent that not all patent applicants are aware of the availability of such special handling under the program. While over 381 patent applications have already been approved for accelerated processing by the Patent Office, a substantial number of patent applicants whose inventions would qualify have not requested special status for their patent applications.

In order to participate in the program, applicants must request that their applications be accorded "special" status in writing, identifying the applications by serial number and filing date, and should submit affidavits or declarations under Rule 102 explaining how their inventions contribute to the restoration or maintenance of one of the three life-sustaining elements mentioned.

ROBERT GOTTSCHALK,
Acting Commissioner of Patents.

June 7, 1971.

[888 O.G. 2]

---

(116) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 1—RULES OF PRACTICE IN PATENT CASES

PART 3—FORMS FOR PATENT CASES

Division-Continuation Program

The current Rule 147 divisional practice and the "streamlined continuation" program set forth in the notices of February 11, 1966 (824 O.G. 1); May 13, 1966 (827 O.G. 2); May 31, 1966 (828 O.G. 1085) and October 14, 1969 (869 O.G. 1) are superseded by this change in the rules.

The practice under § 1.60 permits persons having authority to prosecute the prior application to file a continuation or divisional application without an oath or declaration, if the continuation or divisional application is a copy of the prior application as filed. However, some of the claims in the prior application as filed may be canceled by amendment in order to reduce the filing fee. An amendment presenting additional claims may accompany the request for filing an application under § 1.60 but such amendment will not be entered until after the filing date has been granted.

Form 3.54 is designed as an aid for use by both applicant and the Patent Office and should simplify filing and processing of applications under § 1.60.

Application copies may be prepared and submitted by the applicant, his attorney or agent, provided they are verified as true copies. No charges will be made for preparation of copies that are retained by the Office.

Notice of proposed rule making regarding a revision of §§ 1.41 and 1.75, an addition of §§ 1.60 and 3.54 and revocation of § 1.147 of Title 37, Code of Federal Regulations, Relating to a division-continuation program, was published in the Federal Register of January 28, 1971 (36 F.R. 1357).

Interested persons were given an opportunity to participate in the rule making process through submission of comments in writing and at an oral hearing held on March 23, 1971.

Full consideration has been given to the comments received and changes in the text of the original proposal have been made in view thereof.

In consideration of the foregoing and pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), Parts 1 and 3 of Chapter I of Title 37 of the Code of Federal Regulations are hereby amended as follows:

1. In § 1.41, paragraph (a) is revised to read as follows:

§ 1.41 *Applicant for patent.*

(a) A patent must be applied for and the application papers must be signed and the necessary oath or declaration executed by the actual inventor in all cases, except as provided by §§ 1.42, 1.43, and 1.47. (See § 1.60.)

* * * * * *

2. A new § 1.60 is added to read as follows:

§ 1.60 *Continuing application for invention disclosed and claimed in a prior application.*

A continuation or divisional application (filed under the conditions specified in 35 U.S.C. 120 or 121), which discloses and claims only subject matter disclosed in a prior application may be filed as a separate application before the patenting or abandonment of or termination of proceedings on the prior application. If the application papers comprise a copy of the prior application as filed, signing and execution by the applicant may be omitted provided the copy either is prepared and certified by the Patent Office or is prepared by the applicant and verified by an affidavit or declaration by the applicant, his attorney or agent, stating that it is a true copy of the prior application as filed. Certification may be omitted if the copy is prepared by and does not leave the custody of the Patent Office. Only amendments reducing the number of claims or adding a reference to the prior application (§ 1.78(a)) will be entered before calculating the filing fee and granting of the filing date.

3. In § 1.75, paragraph (d)(2) is revised to read as follows:

§ 1.75 *Claim(s).*

* * * * * *

(d) * * *

(2) See §§ 1.141 to 1.146 as to claiming different inventions in one application.

* * * * * *

§ 1.147 [*Revoked*]

4. Section 1.147 is revoked.

5. Section 3.54 is added to read as follows:

§ 3.54 *Division-continuation program application transmittal form.*

IN THE UNITED STATES PATENT OFFICE

Docket No._____

THE COMMISSIONER OF PATENTS,
Washington, D.C. 20231.

SIR: This is a request for filing a

☐ Continuation
☐ Divisional

application under 37 CFR 1.60,

of pending prior application Serial No. _____ filed on _____ (date) of _____ (inventor)

for _____ (title of invention)

1. ☐ Enclosed is a copy of the prior application as originally filed and an affidavit or declaration verifying it as a true copy.
2. ☐ Prepare a copy of the prior application.
3. ☐ The filing fee is calculated below:

CLAIMS AS FILED, LESS ANY CLAIMS CANCELED BY AMENDMENT

For	Number filed	Number extra	Rate	Basic fee $65
Total claims	−10=	×	$2 =	
Independent claims	−1=	×	10 =	
Total filing fee				

4. ☐ The Commissioner is hereby authorized to charge any fees which may be required, or to credit any overpayment to Account No. _____. A duplicate copy of this sheet is enclosed.
5. ☐ A check in the amount of $_____ is enclosed.
6. ☐ Cancel claims _____.

7. ☐ Amend the specification by inserting before the first line the sentence: —This is a ☐ continuation, ☐division, of application Serial No. ----------, filed ----------.—

8. ☐ Transfer the drawings from the prior application to this application and abandon said prior application as of the filing date accorded this application. A duplicate copy of this sheet is enclosed for filing in the prior application file.

9. ☐ The prior application is assigned to ----------.

10. ☐ The power of attorney in the prior application is to

(name, reg. No., and address)

a. ☐ The power appears in the original papers of the prior application.

b. ☐ Since the power does not appear in the original papers, a copy of the power in the prior application is enclosed.

c. ☐ Recognize as associate attorney and address all future communications to ----------

---

(name, reg. No., and address)

(Signature)

☐ Inventor(s)
☐ Assignee of Complete Interest
☐ Attorney or agent of record in prior application

Effective date. These amendments shall become effective on September 1, 1971, and will apply to applications filed after that date.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Approved: June 29, 1971.

JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

[FR Doc. 71-9484 Filed 7-2-71; 8:51 am]

Published in 36 F.R. 12689; July 3, 1971

[889 O.G 3]

---

(117) ABBREVIATED FIRST ACTION TRIAL PROGRAM

Requests for Comments

The Abbreviated First Action Program, announced in the OFFICIAL GAZETTE of February 2, 1971 (883 O.G. 2), using form PO–1142 has been in operation for over nine months. Considerable experience with the use of this form should now be available throughout the patent profession It is recognized that though the use of this form may not be an ideal form of communication, the increased burdens on the examination and processing of patent applications have necessitated the development of more efficient methods of expediting the prosecution.

Comments, criticisms, and suggestions concerning the Abbreviated First Action Program are invited. It is requested that the opinions expressed be made in the light of current conditions under which the Office must operate and be based on actual experience with the program. In order to adequately determine the quality and value of this program all views, both favorable and unfavorable, are earnestly solicited. Any critical comments should be supported wherever practical by reference to specific cases.

Letters written in response to this request should be sent as soon as possible to the Commissioner of Patents, Washington, D.C. 20231, Attn: Assistant Commissioner R. A. Wahl.

FRANK H. BRONAUGH,
Nov. 10, 1971. *Deputy Assistant Commissioner.*

[893 O.G. 1]

---

(118) ABBREVIATED FIRST ACTION PROGRAM

The Abbreviated First Action Program using Form PO–1142 announced in the OFFICIAL GAZETTE of February 2, 1971 (883 O.G. 2) has been reviewed in the light of comments received from examiners, attorneys, and other members of the public, pursuant to the notice of November 10, 1971 (893 O.G. 1). As a result of this review the program will be continued and the form modified to incorporate some of the suggested improvements. The space for the explanation of the rejection will be expanded. In addition, the instructions to the examiners will be supplemented to reinforce the original stress on the importance of legibility, clarity and completeness in setting forth the examiner's position, and desirability of including suggestions that would render the case allowable.

RICHARD A. WAHL,
Mar. 17, 1972. *Assistant Commissioner.*

[897 O.G. 762]

---

(119) EVIDENCE OF PATENTABILITY OR PRIORITY

[37 CFR Part 1]

Proposed Special Statement in Affidavit or Declaration When Relying Upon Facts, Data, Test Results or Other Evidence

Notice is hereby given that, pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6) the Patent Office proposes to amend Title 37, Code of Federal Regulations, by adding a new § 1.69.

All persons are invited to present their views, objections, recommendations, or suggestions in connection with the proposed new section, to the Commissioner of Patents, Washington, D.C. 20221, on or before June 27, 1972, on which date a hearing will be held at 9 a.m. in Room 8C06, Building 2, Crystal Plaza, 2011 Jefferson Davis Highway, Arlington, Va. 22202. All persons wishing to be heard orally at the hearing are requested to notify the Commissioner of Patents of their intended appearance. Any written comments or suggestions may be inspected by any person upon written request a reasonable time after the closing date for submitting comments.

New § 1.69 seeks to guard against the omission from facts, data, test results, or other evidence presented in connection with patentability or priority of invention, of known evidence which is inconsistent with that presented or which would convey a different impression. The purpose is to insure presentation to the Patent Office of the evidence needed to make an informed decision on patentability or priority of invention. The section thus requires a verified statement that no such inconsistent evidence is known to the person making the statement, if such is the fact.

The text of the proposed new § 1.69 is as follows:

§ 1.69 *Special statement in affidavit or declaration when relying upon facts, data, test results, or other evidence.*

(a) An affidavit or declaration filed during the prosecution of an application presenting evidence urged as bearing on patentability or priority of invention will be considered only if the applicant or other person making the affidavit or declaration states therein that no evidence is known to him which is inconsistent with that relied on in the affidavit or declaration, or which would tend to give an impression different from that conveyed by the affidavit or declaration.

(b) If, during the prosecution, the applicant, to establish patentability, relies on representations as to facts, data, or test results set forth in the specification, such representations will be considered for that purpose only if applicant files an affidavit or declaration attesting as to the truth of the representations and asserting that no facts, data, or test results are known to him which are inconsistent with those set forth in the specification, or which would tend to give an impression different from that conveyed by the specification.

Dated: April 28, 1972.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Approved: May 1, 1972.

JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

[FR Doc. 72-6925 Filed 5-5-72; 8:49 a.m.]

Published in 37 F.R. 9225, May 6, 1972

[899 O.G. 2]

---

(120) STATUS OF RULE 69 PROPOSAL

This notice is in response to numerous inquiries received by the Patent Office relative to the status of the proposal,

published at 37 F.R. 9225 on May 6, 1972 and at 899 O.G. 2 on June 6, 1972, to add a new section 1.69 to Title 37, Code of Federal Regulations.

All of the many written and oral comments received have been analyzed and are currently being studied. The analysis indicates that comments in favor of and against the principle of the rule were about evenly divided. Many comments expressed reservations concerning the language used. The "inconsistency" and "tend to give an impression" clauses drew the most criticism. The first clause was viewed as being too absolute, forcing the affiant or declarant to abdicate reasonable judgment concerning validity of seemingly inconsistent or maverick test results. The second clause was viewed as being too subjective or vague which would result in second guessing later. The additional burden on both applicants and examiners was also advanced as reason to change the proposed language.

In summary, the proposal is still under study with the view of developing a satisfactory way to accomplish the intent of the proposed rule.

S. WM. COCHRAN,
Nov. 22, 1972. *Solicitor.*

[905 O.G. 448]

AMENDMENTS

(121) AMENDMENTS—BASIS IN ORIGINAL DISCLOSURE MANUAL OF PATENT EXAMINING PROCEDURE

When an amendment is filed in response to an objection or rejection based on incomplete disclosure, a study of the entire application is often necessary to determine whether or not "new matter" is involved. In the interest of expeditious prosecution, Examiners are directed, whenever such an objection or rejection is made, to call attention to Rule 111(c). Applicant should specifically point out the support for any amendments made to the disclosure.

RICHARD A. WAHL,
Aug. 13, 1965. *Assistant Commissioner.*

[818 O.G. 4]

(122) EXAMINER'S AMENDMENT PRACTICE

The present practice in making Examiner's Amendments when passing an application to issue is modified to permit the amendment or cancellation of claims where these have been authorized by applicant (or his representative) in a telephone or personal interview. The Examiner's Amendment should include a statement indicating that the changes were authorized, the date and type (personal or telephone) of interview, and with whom it was had.

The current policy prohibiting changes in the drawing and/or description of an application is maintained with the exceptions noted in MPEP Section 1302.04.

The new procedure resulted from an employee's suggestion.

RICHARD A. WAHL,
May 11, 1966. *Assistant Commissioner.*

[827 O.G. 2]

(123) BRACKETS AND RULE 121—AMENDMENT OF CLAIMS

In view of the number of inquiries requesting an interpretation of the word "brackets" appearing in amended Rule 121 concerned with the amendment of claims, it is thought that clarification is desirable.

The term brackets [ ] as set forth in the amendment to Rule 121 and first announced in 843 O.G. 373 does not encompass and is to be distinguished from parentheses ( ). Therefore, any amendment using parentheses to indicate cancelled matter in a claim rewritten under Rule 121(b) may be held non-responsive in accordance with Rule 121(c).

RICHARD A. WAHL,
Jan. 15, 1968. *Assistant Commissioner.*

[847 O.G. 331]

INTERVIEWS

(124) INTERVIEW PRACTICE

To assist in early and equitable conclusion of examination of applications, the use of interviews in person or by telephone is encouraged, subject to the following guidelines.

Interviews with Examiners, whether in person or by telephone, shall be governed in general by the provisions of Rule 133. A request for an interview, whether made orally or in writing, before the first Office action is untimely and will not be acknowledged if written, or granted if oral; Rule 133(a).

If upon examination or re-examination, It is found that *minor* changes could be made to place the application in condition for allowance, the attorney or pro se inventor should be so notified by telephone. This practice should be followed whether or not there has been a specific request for interview or for such notification.

Where an interview is arranged, both the Examiner and the attorney should be familiar with the issues in the application before starting the conference. It is the responsibility of both parties to the interview to see that it is not extended beyond a reasonable time, usually not longer than thirty minutes. The Primary Examiner personally responsible for the final disposition of the application should be notified of the results of the interview at its conclusion.

Interviews in person or by telephone are to be encouraged after the first Office action on the merits. In addition to interviews initiated by applicant, the Examiner may initiate interviews where he believes it would be productive. This practice may result in the filing of a first response that will so effectively advance the prosecution to permit disposing of the case in a bare minimum number of actions. The telephone procedure set forth in part 4 of Optimum Examining Procedure Memorandum #3, 801 O.G. 267, *requiring* a call by the Examiner, if requested by applicant, before taking final action has been found not satisfactory and will no longer be followed.

An interview may be granted after final rejection; however, except in rare instances, only one such interview should be granted.

An interview should not be requested or approved, except in very unusual circumstances, after filing of a Brief on appeal or after an application has been passed to issue by the Primary Examiner.

Interviews are permissible any working day of the week except on overtime Saturdays.

RICHARD A. WAHL,
Acting Superintendent,
Sept. 16, 1964. *Patent Examining Corps.*

[807 O.G. 307]

(125) TELEPHONE INTERVIEWS

Present Office policy places great emphasis on telephone interviews initiated by the Examiner. For this reason, it is no longer deemed necessary for an attorney to request a telephone interview as specified in the old Optimum Examining Procedure memos. Examiners are no longer required to note or acknowledge requests for telephone calls or state reasons why such proposed telephone interviews would not be considered effective to advance prosecution. However, it is still desirable for an attorney to call the Examiner if the attorney feels the call will be beneficial to advance prosecution of the case.

RICHARD A. WAHL,
Oct. 11, 1967. *Assistant Commissioner.*

[846 O.G. 1022]

JOINDER

(126) TELEPHONE PRACTICE IN RESTRICTION AND ELECTION OF SPECIES SITUATIONS

If an examiner determines that a requirement for restriction should be made in an application, he should formulate a draft of such restriction requirement including, if any, the grounds of rejection of linking or generic claims. Thereupon, he should telephone the attorney of record and ask if he will make an oral election, with or without traverse if desired, after the attorney has had time to consider the restriction requirement. The examiner should arrange for a second telephone call within a reasonable time, generally within three

working days. If the attorney objects to making an oral election, or fails to respond, the usual restriction letter will be mailed, and this letter should NOT contain any reference to the unsuccessful telephone call.

When an oral election is made, the examiner will then proceed to incorporate into his letter a formal restriction requirement including the date of the election, the attorney's name, and a complete record of the telephone interview, followed by a complete action on the elected claims including linking or generic claims if present.

If on examination the examiner finds the elected claims to be allowable and no traverse was made, the letter should be written on POL–37 (Examiner's Amendment) and should include cancellation of the non-elected claims, a statement that the prosecution is closed and that a notice of allowance will be sent in due course. Correction of formal matters in the above-noted situation which cannot be handled by a telephone call and thus requires action by the applicant should be handled under the *Ex parte Quayle* practice, using POL–90; these would usually be drawing corrections or the like requiring payment of charges.

Should the elected claims be found allowable in the first action, and an oral traverse was noted, the examiner should include in his action a statement under Section 821.01, M.P.E.P., making the restriction final and giving applicant thirty days (Rule 136) to either cancel the non-elected claims or take other appropriate action. Failure to take action will be treated as an authorization to cancel the non-elected claims by an Examiner's Amendment and pass the case to issue. Prosecution of this application is otherwise closed.

In either situation (traverse or no traverse), caution should be exercised to determine if any of the allowed claims are linking or generic before cancelling the non-elected claims.

Where the respective inventions are located in different groups the requirement for restriction should be made only after consultation with and approval by all groups involved. If an oral election would cause the application to be examined in another group, the initiating group should transfer the application with a signed memorandum of the restriction requirement and a record of the interview. The receiving group will incorporate the substance of this memorandum in its official letter as indicated above. Differences as to restriction should be settled by the existing chain of command, e.g. Supervisory Primary Examiner or Manager.

This practice is limited to use by examiners who have at least negotiation authority. Other examiners must have the prior approval of their Supervisory Primary Examiner.

RICHARD A. WAHL,
Jan. 27, 1966. *Assistant Commissioner.*

[824 O.G. 408]

---

(127) RESTRICTION AND ELECTION PRACTICE

Effective April 1, the practice and procedure in cases involving a requirement for restriction or election is changed as indicated below.

Under the new practice, whenever a written or telephoned requirement is made in a case which includes claims considered by the Examiner to be generic or linking, it will not include any rejection of these claims. The Examiner should specify which claims are considered to be generic or linking.

Although no art will be cited where linking claims are present, a search should be made and art cited where generic claims are involved. In the latter situation the generic claims will not be rejected but merely indicated as not allowable in view of the cited art (Rule 146).

A 30-day shortened statutory period will be set for response to a written requirement. Such action will not be an "action on the merits" for the purpose of the second action final program. In either situation, with linking or generic claims, a response, to be complete, need only include a proper election.

The only exception to the above practice will be in the case where the Examiner gives a complete action on the merits of all the claims in addition to the requirement for restriction.

The use of the telephone to make an initial requirement will be continued and is encouraged.

RICHARD A. WAHL,
Feb. 28, 1967. *Assistant Commissioner.*

[837 O.G. 668]

(128) ELECTION OF SPECIES

Effective June 1, 1967, the following practice will be instituted on a trial basis for 6 months.

In cases involving Markush claims or generic claims of the formula type including such a number and diversity of members as to require an unduly extensive and burdensome search for the embodiments encompassed, the Examiner may require election of species without a search on the merits (Rule 105).

The election requirement may be made in the same manner as that described in the Change Notice 12–6 of Feb. 28, 1967, with a 30 day shortened statutory period which will not be an "action on the merits" for the purpose of second action final program. If a telephone requirement, made by the Examiner, is complied with the first written action will be a complete action on the merits and the usual 3 months shortened statutory period will be set.

As pointed out in Change Notice 12–6, the use of the telephone to make an initial requirement will be continued and is encouraged.

EDWARD J. BRENNER,
May 4, 1967. *Commissioner.*

[838 O.G. 1223]

---

(129) NON-ELECTED CLAIMS

In the interest of expediting the prosecution of pending applications, the following change in procedure is made. When preparing a final action in an application where there has been a traversal of a requirement for restriction or election of species, the Examiner should indicate in his action that a complete response must include cancellation of the non-elected claims or other appropriate action (Rule 144).

In the above situations where a response to the final action has otherwise placed the application in condition for allowance, the failure to take appropriate action with respect to the non-elected claims will be construed as authorization to cancel these claims by Examiner's Amendment and pass the case to issue after the expiration of the statutory period.

RICHARD A. WAHL,
May 24, 1968. *Assistant Commissioner.*

[851 O.G. 893]

---

(130) CHANGE OF INVENTORS

Where a person is added or removed as an inventor during the prosecution of an application before the Patent Office, problems may occur upon claiming U.S. priority in a foreign filed case. One such problem results from the apparent conflict between the inventor(s) named in the foreign application and the inventor(s) shown on the priority papers obtained from the U.S. Patent Office. Another problem may occur where there is no conflict between the inventors in the foreign application as filed and the priority papers but a change of inventors has been made in the U.S. application and a similar change is to be made in the foreign application.

In order to overcome the possibility of these problems arising in the future, Examiners should acknowledge any addition of inventors made in accordance with the practice under Rule 45 including the following statement in the next communication to the applicant or his attorney:

"In view of the papers filed _____, it has been found that this application, as filed, through error and without any deceptive intention, failed to include _____ as an actual joint inventor and accordingly, this application has been corrected to include him in accordance with Rule 45."

A similar statement, appropriately modified, should be made in the case where an inventor is removed from those included in the application as filed.

RICHARD A. WAHL,
June 10, 1968. *Assistant Commissioner.*

[852 O.G. 509]

---

(131) RESTRICTION BETWEEN INVENTIONS

Combination claims (other than genus claims linking species claims), whether allowable, allowed, or not, will no

longer automatically be permitted to serve as a basis for joining claimed inventions which otherwise would be properly the subject of a restriction requirement. In other words, applicant will be required to elect one of the claimed inventions which are the subject of a proper restriction requirement. Combination claims, formerly considered linking claims should be grouped as a separate invention. Rejoinder of the divided inventions, should any combination claim be allowed, however, also will no longer automatically be permitted. The statutory criteria for distinctness will be satisfied if the subcombinations and/or combinations involved are shown to be separately classified, or to have acquired a separate status in the art, or to involve different fields of search.

RICHARD A. WAHL,
June 20, 1968. *Assistant Commissioner.*

[852 O.G. 509]

---

(132) ELECTION OF SPECIES

The practice set forth in the Notice of May 4, 1967 (838 O.G. 1223) is made permanent and modified to permit a requirement for election of species in cases involving multiple species whether or not generic claims are present or searched prior to the election. Also, if no claims to species are presented but the generic claim is of the burdensome type referred to in the Notice, a requirement for election of species prior to search of the generic claims should be made.

As in the original Notice, if an election is made pursuant to a telephone requirement, the action should include a full and complete action on the elected species as well as on any generic claims that might be present. If generic claims are found allowable, no change in the practice currently in effect is contemplated.

RICHARD A. WAHL,
Aug. 19, 1968. *Assistant Commissioner.*

[854 O.G. 287]

---

(133) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER 1—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 1—RULES OF PRACTICE IN PATENT CASES

PART 3—FORMS FOR PATENT CASES

Conflicting Claims

These rule changes are intended to provide: (1) a basis for requiring a determination of priority without an interference by the common owner of a plurality of applications, or patent and applications, containing conflicting claims, and (2) a basis for requiring inclusion of a common ownership clause in all terminal disclaimers filed to obviate a double patenting rejection.

The proposal to amend Title 37, Code of Federal Regulations, by revising §§ 1.78 and 1.321 and by adding a new § 3.53 was published in the December 31, 1970, issue of the Federal Register (35 F.R. 20011).

All interested persons were given an opportunity to participate in the rule making process by submission of comments in writing and in person at an oral hearing held on February 19, 1971. Changes have been made in the text of the original proposal as a result of these comments.

In consideration of the comments received and pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), Parts 1 and 3 of Title 37, Code of Federal Regulations, are hereby amended as follows:

1. In § 1.78, paragraph (b) has been revised and paragraph (c) has been added to read as follows:

§ 1.78 *Cross-references to other applications.*

* * * * *

(b) Where two or more applications filed by the same applicant contain conflicting claims, elimination of such claims from all but one application may be required in the absence of good and sufficient reason for their retention during pendency in more than one application.

(c) Where two or more applications, or an application and a patent naming different inventors and owned by the same party contain conflicting claims, the assignee may be called upon to state which named inventor is the prior inventor. In addition to making said statement, the assignee may also explain why an interference should be declared or that no conflict exists in fact.

2. Section 1.321 is revised to read as follows:

§ 1.321 *Statutory disclaimer.*

(a) A disclaimer under 35 U.S.C. 253 must identify the patent and the claim or claims which are disclaimed, and be signed by the person making the disclaimer, who shall state therein the extent of his interest in the patent. A disclaimer which is not a disclaimer of a complete claim or claims may be refused recordation. A notice of the disclaimer is published in the OFFICIAL GAZETTE and attached to the printed copies of the specification. In like manner any patentee or applicant may disclaim or dedicate to the public the entire term, or any terminal part of the term, of the patent granted or to be granted.

(b) A terminal disclaimer, when filed in an application to obviate a double patenting rejection, must include a provision that any patent granted on that application shall be enforceable only for and during such period that said patent is commonly owned with the application or patent which formed the basis for the rejection. See § 1.21 for fee.

3. A new § 3.53 is added, which reads as follows:

§ 3.53 *Terminal disclaimers in applications.*

To the Commissioner of Patents:

Your petitioner, ----------, residing at ---------- in the county of ---------- and State of ---------- represents that he is (here state exact interest of the disclaimant and, if he is an assignee, set out the liber and page or reel and frame where the assignment is recorded) of application Serial No. ----------, filed on the ------ day of ----------, 19--- for ----------. Your petitioner, ----------, hereby disclaims the terminal part of any patent granted on the above-identified application, which would extend beyond the expiration date of Patent No. ---------- and hereby agrees that any patent so granted on the above-identified application shall be enforceable only for and during such period that the legal title to said patent shall be the same as the legal title to United States Patent No. ----------, this agreement to run with any patent granted on the above identified aplication and to be binding upon the grantee, its successors or assigns.

Effective date. This revision shall become effective on April 30, 1971.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Approved: April 12, 1971.

JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

[FR Doc. 71-5418; Filed 4-16-71; 8:51 a.m.]

Published in 36 F.R. 7312; Apr. 17, 1971

[886 O.G. 424]

---

(134) RESTRICTION PRACTICE

[37 CFR Part 1]

Notice of Proposed Rule Making

Notice is hereby given that, pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), as amended October 5, 1971, Public Law 92-132, 85 Stat. 364, the Patent Office proposes to amend Title 37 of the Code of Federal Regulations by revising §§ 1.141, 1.142, 1.144, 1.145, and 1.146.

All persons are invited to present their views, objections, recommendations or suggestions in connection with the proposed changes to the Commissioner of Patents, Washington, D.C. 20231 on or before December 12, 1972, on which date a hearing will be held at 9:30 a.m. in Room 11 C 24, Building 3, 2021 Jefferson Davis Highway, Arlington, Va. All persons wishing to be heard orally at the hearing are requested to notify the Commissioner of Patents of their intended appearance.

Any written comments or suggestions may be inspected by any person, upon written request, a reasonable time after the closing date for submitting comments.

The proposed changes have three main purposes, (1) to clarify when a requirement for restriction may properly be made by an examiner, (2) to remove the limitation of five species if there is an allowable generic claim in the case, and (3) to provide a basis in the rules for requiring restriction to a single invention when two or more patentably different inventions are claimed in a single Markush-type claim. See "Ex parte Markush," 1925 C.D. 126 (Comm'r. Pat. 1924).

The expression "patentably different" emphasizes the importance of requiring restriction between two or more inventions only where there are unobvious differences between those inventions and separate patents can properly be granted to each invention. Otherwise due to the double patenting prohibition of 35 U.S.C. 121, multiple patents would be granted on a single invention. The proposed changes make it clear that a requirement for restriction is proper only when two or more patentably different inventions are claimed in one application.

The practice under present §§ 1.141 and 1.146 of limiting an application to five species, even though a generic claim has been allowed, has caused some problems since 1953 when the present language of section 121 of the patent statute became effective. Section 121 prohibits the use of a patent as a reference in a subsequent divisional application filed as the result of a requirement for restriction in the application on which such a patent is based. Present §§ 1.141 and 1.146 indicate that an application may be limited to five species even though an allowable generic claim appears therein. If an application is so limited to five species, the other species can be specifically protected only if refiled in a divisional application. Such applications may be filed even though the species are not patentably different from each other. Since the first patent cannot be used as a reference against the second application, limiting the number of species in the first patent would result in a second patent issuing on species which are not patentably different from the species in the first patent. The proposed changes would avoid this problem by removing from the rules the language limiting the claims in one application to five species.

The Markush-type claim practice which allows enumeration in a claim of a plurality of alternatively usable substances or members, has been sanctioned to permit the inclusion of such members in a claim when a generic term covering them is not available. Over the years, this form of claim has been used, for example, in claiming compounds having a large variety of substituent groups, and as a result, Markush-type claims are presented which are each directed to a plurality of independent and distinct inventions.

More than one invention is present in a Markush-type claim if the alternatively usable members of the Markush group are so unrelated and diverse that a prior art reference which shows one of the members and otherwise anticipates the claim could not ordinarily be used to reject under 35 U.S.C. 103 a claim reciting another of the members. In such circumstances, the claim is considered to be an improper Markush-type claim and not a generic claim. Such a claim imposes an undue burden on the Patent Office, particularly with respect to the search which would have to be made for proper examination.

The proposed changes expressly sanctioned the withdrawal of improper Markush-type claims. It should be noted that the "withdrawal" of such improper Markush-type claims would provide the applicant with the benefits of the double patenting prohibition of 35 U.S.C. 121. This benefit would not be available if such improper Markush-type claims were rejected.

The proposed changes will permit examiners to expedite prosecution and make more meaningful searches to determine whether the disclosed and claimed inventions are novel and patentable.

The text of the proposed revised rules is as follows:

§ 1.141 *Different inventions in one application.*

An application claiming two or more independent and distinct, patentably different inventions may be required to be restricted to one of the inventions. Inventions are patentably different when one is not obvious in view of the other, and they may properly appear in separate patents.

§ 1.142 *Requirement for restriction between inventions.*

(a) If two or more independent and distinct, patentably different inventions are claimed in a single application and the examiner deems that restriction is appropriate, he may require the applicant to elect for prosecution in the application a single invention, to which his claims shall be restricted. Such a requirement may be made at any time before final action in the case, at the discretion of the examiner.

(b) In an application containing a claim which enumerates alternatively usable substances or members which are so unrelated that the claim is, in fact, directed to independent and distinct, patentably different inventions, the examiner may require the applicant to elect the invention to which his claims shall be restricted. After election by applicant, such an improper claim by enumeration may be withdrawn by the examiner from further examination because more than one invention is being claimed (35 U.S.C. 121).

(c) Claims not restricted to the elected invention, if not canceled, are nevertheless withdrawn from further consideration by the examiner by the election, subject, however, to reinstatement in the event the requirement for restriction is withdrawn or overruled pursuant to a petition under § 1.144.

§ 1.144 *Petition from requirement for restriction.*

Within 2 months after the examiner's adverse reply to a request for reconsideration of a requirement for restriction, the applicant may petition the Commissioner to review the requirement. A petition will not be considered if reconsideration of the requirement was not requested. (See § 1.181.)

§ 1.145 *Subsequent presentation of claims for different invention.*

If, after an examiner's action on an application, the applicant presents a claim or claims therein directed to a patentably different invention, distinct from and independent of the invention previously claimed, the examiner may require the applicant to restrict the claims to the invention previously claimed if the amendment is entered, subject to reconsideration and review as provided in §§ 1.143 and 1.144.

§ 1.146 *Election of species.*

In an application containing a generic claim and claims directed to a plurality of independent and distinct, patentably different species embraced thereby, the examiner may require the applicant to elect that species of his invention to which his claims shall be restricted if no generic claim is finally held allowable. If a generic claim is later found allowable, the application may also contain claims to species in addition to the one elected, provided that such additional species claims are either written to be dependent from a generic claim (§ 1.75 (c)) or to otherwise include all the limitations of the generic claim.

RICHARD A. WAHL,
Acting Commissioner of Patents.

Approved: October 13, 1972.

RICHARD O. SIMPSON,
Acting Assistant Secretary for Science and Technology.

[FR Doc. 72-17925 Filed 10-19-72; 8:47 am]

Pub. in 37 F.R. 22625, Oct. 20, 1972

[905 O.G. 254]

---

(135) PROPOSED AMENDMENT OF RULES ON RESTRICTION PRACTICE IN PATENT CASES

On October 20, 1972, the Patent Office published a notice of proposed rule making on restriction practice in patent cases (37 F.R. 22625). The notice proposed to amend Title 37 of the Code of Federal Regulations by revising §§ 1.141, 1.142, 1.144, 1.145, and 1.146. In the notice, it was stated that a hearing would be held at 9:30 a.m. on December 12, 1972, in Room 11 C 24, Building 3, 2021 Jefferson Davis Highway, Arlington, Virginia.

The Patent Office has received requests from interested persons that the hearing be postponed to a later date to allow ample opportunity to consider the proposed amendments. The hearing, accordingly, will not be held at the time originally set but has been rescheduled for 2:30 p.m. on January 16,

1973, in Room 11 C 24, Building 3, 2021 Jefferson Davis Highway, Arlington, Virginia. Written views, objections, recommendations or suggestions will be considered if submitted on or before the date of the hearing.

The text of the notice as originally published is reproduced below.

ROBERT GOTTSCHALK,
Nov. 14, 1972. *Commissioner of Patents.*

[905 O.G. 254]

TIME FOR RESPONSE

(136) EXTENSION OF TIME

It is ordinarily desirable that notice of the action taken by the Patent Office on requests for extension of time be communicated to the persons making the requests as soon as is reasonably possible. In order to improve Patent Office service to patent and trademark applicants in this regard, the following procedure is being instituted effective immediately. If a request for extension of time is filed in duplicate and accompanied by a stamped return-addressed envelope, the Office will indicate the action taken on the duplicate and return it promptly in the envelope. Utilization of this procedure is optional on the part of applicant.

EDWARD J. BRENNER,
Aug. 3, 1966. *Commissioner of Patents.*

[829 O.G. 1307]

(137) EXTENSIONS OF TIME

Effective immediately, a new liberal policy for interpretation and application of Rule 136(b) will apply with respect to first requests for a one-month extension of time for reply to Office actions where a shortened statutory period for response has been set. Any request under Rule 136(b) for extension of time must state a reason in support thereof; under the above policy the application of the rule will entail only a limited evaluation of the stated reason.

This liberality will not apply to (1) any requests for more than a one-month extension, and (2) second and subsequent requests for extension of time.

In order to provide prompt notification of the action taken on extension requests, the request may be filed in duplicate, accompanied by a stamped return-addressed envelope (including a ZIP code), as announced in the OFFICIAL GAZETTE of, August 3, 1966, 829 O.G. 1307).

It is expected that requests for extension of time will continue to be made only when a need exists and will not become a standard operating procedure. Routine use of this practice may necessitate abandoning the new policy and a return to a less liberal interpretation of Rule 136(b).

RICHARD A. WAHL,
Jan. 26, 1967. *Assistant Commissioner.*

[835 O.G. 716]

(138) FINAL REJECTION—TIME FOR RESPONSE

Effective Sept. 1, 1967, the filing of a timely response to a final rejection having a shortened statutory period for response will operate to extend the period for appeal or filing of a containing case an additional month, but in no case to exceed six months from the date of the final action.

An object of this practice is to obviate the necessity for appeal or filing a continuing case merely to gain time to consider the Examiner's position in reply to an amendment timely filed after final rejection.

Present practice relating to the treatment of amendments after final rejection will continue to apply and failure to file a response during the three-month period will, as heretofore, result in abandonment of the application. In any case where this one-month extension applies and an amendment is officially received during this additional month, the amendment will not be entered or responded to unless it *prima facie* places the application in condition for allowance (e.g. cancels all rejected claims, fully complies with all Examiner suggestions, requirements, etc.).

Also, during this additional month no applicant- or attorney-initiated interview will be permitted.

EDWARD J. BRENNER,
Aug. 7, 1967. *Commissioner.*

[841 O.G. 1411]

(139) FINAL REJECTION—TIME FOR RESPONSE

In clarification of the Notice of August 7, 1967, published in the OFFICIAL GAZETTE of August 29, 1967 (841 O.G. 1411), the filing of a timely response after a final rejection is construed as including a request for a one month extension of the shortened statutory period.

If the response is complete but fails to place the application in condition for allowance, the request will be granted. The entry of any further amendments filed during the additional month shall be restricted to those which *prima facie* place the application in condition for allowance.

RICHARD A. WAHL,
Sept. 26, 1968. *Assistant Commissioner.*

[855 O.G. 1109]

(140) OFFICE ACTIONS—TIMELY RESPONSE

The Patent Office has been receiving an excessively large volume of petitions to revive based primarily on the late filing of amendments and other responses to official actions. Many of these petitions indicate that the late filing was due to unusual mail delays; however, the records generally show that the filing was only two or three days late.

In order to alleviate, for applicants and the Office, the problems and expenditures of time and effort occasioned by abandonments and petitions to revive, it is suggested that responses to official action be mailed to the Patent Office at least one, and preferably two, week(s) prior to the expiration of the period within which a response is required. This suggestion is made in the interest of improving efficiency, thereby providing better service to the public.

WILLIAM FELDMAN,
Aug. 25, 1972. *Deputy Assistant Commissioner for Patent Examining.*

[902 O.G. 1172]

APPEALS

(141) APPEAL BRIEFS

It appears that many appeal briefs are being filed which omit reference to the drawing in describing the appellant's invention. As a reminder that the Board of Appeals is aided in its consideration if such a reference appears, attention is directed to the following language in the first sentence of Rule 192(a):

". . . including a concise explanation of the invention which should refer to the drawing by reference characters . . ."

EDWIN L. REYNOLDS,
Aug. 3, 1965. *First Assistant Commissioner.*

[817 O.G. 1241]

(142) APPEAL BRIEFS

While Rule 192(a) requires two extra copies of appeal briefs only if an oral hearing is requested, such copies are of substantial assistance to the Board when appeals are submitted on brief and it is desirable that they be supplied in such cases also. All claims reproduced in appeal briefs should be double spaced.

EDWIN L. REYNOLDS,
Jan. 24, 1966. *First Assistant Commissioner.*

[823 O.G. 411]

(143) PRACTICE RE: WITHDRAWAL OF FINAL REJECTION BY THE EXAMINER AFTER NOTICE OF APPEAL TO THE BOARD OF APPEALS

Where Notice of Appeal to the Board of Appeals has been filed and the Examiner withdraws the final rejection for allowance or further rejection, applicants are reminded that this results in automatic removal of the appeal from the records of the Board of Appeals in that application.

Accordingly, a proper response to a subsequent final rejection requires the filing of a new Notice of Appeal [without fee] and if this appeal is carried forward, the appropriate fee on filing a brief in support of the second appeal is required.

EDWIN L. REYNOLDS,
Mar. 29, 1967. *First Assistant Commissioner.*

[837 O.G. 667]

(144) RULE 192—FILING OF APPEAL BRIEF

Attention is directed to the fact that the seasonable filing of an appeal brief is determined by Rule 192, irrespective of whether the applicant or his attorney has received the appeal acknowledgment with its *reminder* of the brief's due date.

The above should be reflected in any docketing system for filing appeal briefs.

EDWIN L. REYNOLDS,
Aug. 4, 1967. *First Assistant Commissioner.*

[841 O.G. 1412]

(145) NEW APPEAL PROCEDURE

In the interest of facilitating and expediting the handling of appeals to the Board of Appeals of the Patent Office it has been decided to institute a practice whereby the application file will ordinarily remain with the Examiner until the Examiner's answer to the appeal is filed. It is therefore necessary to modify the appeal procedure, effective immediately, as indicated below.

1. *First Extension of Time To File Appeal Brief*

To avoid delay in receiving notification of the granting of a first extension under Rule 192, appellant should file his request in duplicate. Where granted, the Board will stamp the action taken on both copies, promptly returning one copy to the addressee.

Further extensions must be sought from the Commissioner, as heretofore.

2. *Notice of Appeal*

To expedite the processing of new appeals and to ensure their prompt acknowledgment, additional information will be necessary on the Notice of Appeal. Accordingly. Form 41 suggested in the Rules of U.S. Patent Office Practice in Patent Cases, is revised as shown below.

Copies for duplication may be obtained from the receptionist in Crystal Plaza and from the Correspondence and Mail Branch in the Main Commerce Building. The use of this revised form is solicited.

All papers relating to appeals should include the post office address of the person to whom correspondence is to be directed.

EDWIN L. REYNOLDS,
First Assistant Commissioner.

REVISED FORM 41

NOTICE OF APPEAL FROM THE PRIMARY EXAMINER TO THE BOARD OF APPEALS

In re application of:
Serial No.:
For:
Filed:
Group Art Unit:
To Commissioner of Patents
Sir:

Applicant hereby appeals to the Board of Appeals from the decision dated _____ of the Primary Examiner finally rejecting claims _____.

The item(s) checked below are appropriate:

1. ☐ An extension of time to respond to the final rejection was granted on _____ for _____ month(s).
2. ☐ A timely response to the final rejection has been filed, as provided in 841 O.G. 1411.
3. ☐ Fee $50.00:
   - ☐ Enclosed
   - ☐ Not required (Fee paid in prior appeal.)
   - ☐ Charge to Deposit Account No. _____. (One additional copy of this Notice is enclosed herewith.)

_____
Signature (Rule 191(b)).

_____
_____
_____
Post Office Address (to which correspondence is to be sent).

[849 O.G. 278 (Apr. 9, 1968)]

(146) ORAL HEARINGS UNDER RULE 194

Effective September 1, 1968, for a trial period of six months, new procedures will be initiated which will permit Primary Examiners to present an oral argument before the Board of Appeals in appeals where the applicant has been granted an oral hearing.

After the attorney or agent representing the appellant has made his presentation, the Examiner will be allowed fifteen minutes to reply as well as to present a statement which clearly sets forth his position with respect to the issues and rejections of record. Appellant may utilize any allotted time not used in the initial presentation for rebuttal.

RICHARD A. WAHL,
July 26, 1968. *Assistant Commissioner.*
Concur:
EDWIN L. REYNOLDS,
First Assistant Commissioner.

[855 O.G. 827]

(147) ABANDONMENT OF APPLICATIONS BEFORE BOARD OF APPEALS

There have been recent instances of the Board of Appeals rendering a decision in an application which had already been refiled as a streamlined continuation.

To avoid recurrence of this situation, applicants should promptly inform the Clerk of the Board in writing as soon as they have positively decided to refile or to abandon an application containing an appeal awaiting a decision. Failure to exercise appropriate diligence in this matter may result in the Board's refusing an otherwise proper request to vacate their decision.

EDWIN L. REYNOLDS,
First Assistant Commissioner.

[857 O.G. 1005 (Dec. 24, 1968)]

(148) APPEAL HEARINGS

The practice of permitting oral arguments by Primary Examiners in appeals, announced for a trial period in the OFFICIAL GAZETTE of Oct. 22, 1968 (855 O.G. 827), is hereby made permanent.

RICHARD A. WAHL,
Mar. 27, 1969. *Assistant Commissioner.*
Concur:
E. L. REYNOLDS,
First Assistant Commissioner.

[861 O.G. 1011]

(149) REPLY BRIEFS

Applicants should clearly and specifically indicate in their reply briefs the new points of argument "raised in the examiner's answer" to which said reply briefs are directed.

Rule 193(b) does not permit general rebuttal of each statement made in the examiner's answer; Consequently a reply brief which is not restricted to answering "new points" may be refused consideration in toto.

EDWIN L. REYNOLDS,
Apr. 15, 1969. *First Assistant Commissioner.*

[862 O.G. 343]

(150) APPEALS—CONFIDENTIAL MEMORANDA

The practice of presenting confidential memoranda to the Board of Appeals is hereby terminated. All correspondence with the Board of Appeals, whether by the Examiner or the applicant will be on the record. No unpublished decisions which are unavailable to the general public by reason of 35 U.S.C. 122 will be cited by the Examiner or the applicant except that either the Examiner or the applicant has the right to cite an unpublished decision in an application having common ownership with the application on appeal.

WILLIAM E. SCHUYLER, JR.,
July 28, 1970. *Commissioner of Patents.*

[877 O.G. 733]

(151) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER 1—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 1—RULES OF PRACTICES IN PATENT CASES

Extensions of Time To File Appeal Briefs

After the effective date of this rule change, the examining group clerical staffs will perform all processing and record-keeping relating to appeals to the Board of Appeals up to and including the time when an examiner's supplemental answer to a reply brief is mailed or the time for filing a reply brief has expired. At this time jurisdiction of an appealed application passes from the examiner to the Board of Appeals.

Therefore, all inquiries and papers concerning an application under appeal should be directed to the appropriate examining group until the application is in condition for consideration by the Board of Appeals.

Papers filed in an appealed application under the jurisdiction of the Board of Appeals, such as requests for reconsideration or confirmation of an oral hearing date, should include an expression in the heading such as "Before the Board of Appeals" so that it may be properly routed by the mailroom.

The examining group appeal clerks are authorized to grant, upon the first request therefor, 1-month extensions of time to file the brief or reply brief. Any further extensions or any initial request for an extension of more than 1 month may be granted by the group directors.

After the effective date, there will be no Patent Office acknowledgements of notices of appeals or briefs.

There was published in the December 31, 1970, issue of the Federal Register (35 F.R. 20010) a proposal to revise § 1.192 of Title 37, Code of Federal Regulations, to broaden the authority to grant extensions of time for filing appeal briefs.

Interested persons were given the opportunity to participate in the rule making through submission of comments in writing, and at an oral hearing held on February 19, 1971.

In consideration of the foregoing and pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), § 1.192 of Title 37 of the Code of Federal Regulations is hereby revised as follows:

§ 1.192 *Appellant's brief.*

(a) The appellant shall, within 2 months from the date of the appeal, or within the time allowed for response to the action appealed from, if such time is later, file a brief in triplicate, accompanied by the requisite fee, of the authorities and arguments on which he will rely to maintain his appeal, including a concise explanation of the invention which should refer to the drawing by reference characters, and a copy of the claims involved, at the same time indicating if he desires an oral hearing. Upon a showing of sufficient cause, the Commissioner may grant extensions of time for filing the brief. The determination of such requests may be delegated by the Commissioner to appropriate Patent Office officials. All requests for extensions must be filed prior to the expiration of the period sought to be extended.

(b) On failure to file the brief, accompanied by the requisite fee, within the time allowed, the appeal shall stand dismissed.

Effective date. This amendment shall be effective March 30, 1971.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Approved: March 25, 1971.

JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

[FR Doc. 71-4414; Filed 3-29-71; 8:50 a.m.]

Published in 36 F.R. 5850; Mar. 30, 1971

[885 O.G. 644]

(152) APPEAL BRIEFS UNDER RULES 192 AND 193(b)

Appellants are reminded that their briefs in appealed cases must be responsive to every ground of rejection stated by the examiner, including new grounds stated in his answer.

Where an appellant fails to respond by way of brief or reply brief to any ground of rejection, and it appears that the failure is inadvertent, appellant shall be notified that he is allowed one month to correct the defect by filing a supplemental brief. Where this procedure has not been followed, the Board of Appeals should remand the application to the examiner for compliance. When the record clearly indicates intentional failure to respond by brief to any ground of rejection, for example, by failure to file a supplemental brief within the one-month period allowed for that purpose, the examiner should inform the Board of Appeals of this fact in his answer and merely specify the claims affected.

Where the failure to respond by brief appears to be intentional, the Board of Appeals may dismiss the appeal as to the claims involved. Oral argument at a hearing will not remedy such deficiency of a brief.

This notice supersedes the notices of May 4, 1966, 826 O.G. 1060, and of Oct. 20, 1966, 833 O.G. 1.

WILLIAM E. SCHUYLER, JR.,
Apr. 26, 1971. *Commissioner of Patents.*

[886 O.G. 424]

(153) EXAMINER TESTIMONY

As stated in Section 1701 of the Manual of Patent Examining Procedure, patent examiners are forbidden to testify as patent experts or to express opinions, in testimony or otherwise, as to the invalidity of any issued patent. Patent examiners have, in connection with litigation involving patent validity, been called to testify on factual matters. In those cases, the practice has been to permit the examiner to testify only upon the issuance of a subpoena.

Henceforth, patent examiners will be permitted to testify on deposition in patent suits, without the need for a subpoena, provided the following conditions are satisfied:

1. The party proposing to take the testimony will state in writing, that the questions to be asked of the examiner will be phrased to comply with the permissible scope of inquiry as outlined in the protective orders contained in the Court opinions in *In re Mayewsky*, 162 USPQ 86, 89 and *Shaffer Tool Works* v. *Joy Manufacturing Co.*, 167 USPQ 170, 171: " . . . the scope of the oral depositions of the patent examiners is hereby limited to matters of fact and must not go into hypothetical or speculative areas or the bases, reasons, mental processes, analyses, or conclusions of the patent examiners in acting upon the patent applications maturing into the patent [in suit]." 167 USPQ 171.
2. That in addition to complying with the requirements of Rule 30 of the Federal Rules of Civil Procedure, the party taking the testimony will agree to give notice of the taking of the deposition of the patent examiner to the Solicitor, at least thirty days prior to the date on which the taking of the deposition is desired.

3. That the party taking the deposition arrange with the Solicitor to notice the deposition at a place convenient to the Patent Office.

If the party desiring to take the testimony of the examiner does not agree to the conditions enumerated, the Patent Office will not permit the examiner to be deposed without a subpoena and compliance with the precedure set forth in Section 7.02, Department of Commerce Administrative Order 205–12, June 29, 1967 as amended April 10, 1970. That section states:

> In any case where it is sought by subpoena, order or other compulsory process or other demand of a court or other authority (hereinafter referred to as a "demand") to require the production or disclosure of any record in the files of the Department of Commerce or other information acquired by an officer or employee of the Department as a part of the performance of his official duties or because of his official status, the matter shall be immediately referred for determination to the appropriate official described in subsection 4.01 of this order. If such official has discretion with respect to disclosure and he determines that it would be improper to comply with the demand, or if he has no discretion with respect to disclosure, the matter shall be promptly referred to the Secretary of Commerce for final determination. Unless and until the Secretary determines that the records or information should be produced, the officer or employee who appears in answer to the demand shall inform the court or other authority (*a*) that the section 7 of this order prohibits the officer or employee from producing or disclosing the records or other information demanded without the prior approval of the Secretary of Commerce, and (*b*) that the demand has been, or is being, as the case may be, referred for the prompt consideration of the Secretary. The officer or employee shall also provide the court or other authority with a copy of the regulations prescribed in this section 7 of this order, and shall respectfully request the court or other authority to stay the demand pending the receipt of instructions or directions from the Secretary of Commerce concerning the demand.

ROBERT GOTTSCHALK,
Mar. 13, 1972. *Commissioner of Patents.*

[897 O.G. 762]

---

(154) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 1—RULES OF PRACTICE IN PATENT CASES

PART 2—RULES OF PRACTICE IN TRADEMARK CASES

Appeal to U.S. Court of Customs and Patent Appeals

The Commissioner of Patents is amending §§ 1.301 and 2.145 of the rules of practice to set forth the time in which an order for transmitting a transcript to the Court of Customs and Patent Appeals should be filed in the Patent Office. Additionally, for the purpose of clarification, all references to "subsection" in § 2.145 have been amended to read "paragraph." These amendments do not effect any change in practice, but merely notify parties filing appeals of the time necessary for the Patent Office to copy and certify a transcript. Since these changes impose no burden on any person, notice and public procedure thereon are deemed unnecessary.

Therefore, pursuant to the authority contained in section 41 of the Act of July 5, 1946 (60 Stat. 440; 15 U.S.C. 1123), and section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), Parts 1 and 2 of Chapter I of Title 37 of the Code of Federal Regulations are hereby amended as follows:

1. Section 1.301 is amended by adding a new sentence at the end. As amended, § 1.301 reads as follows:

§ 1.301 *Appeal to U.S. Court of Customs and Patent Appeals.*

Any applicant dissatisfied with the decision of the Board of Appeals, and any party to an interference dissatisfied with the decision of the Board of Patent Interferences, may appeal to the U.S. Court of Customs and Patent Appeals. The appellant must take the following steps in such an appeal: (a) In the Patent Office give notice to the Commissioner and file the reasons of appeal (see §§ 1.302 and 1.304); (b) in the court, file a petition of appeal and a certified transcript of the record within a specified time after filing the reasons of appeal, and pay the fee for appeal, as provided by the rules of the court. The transcript will be transmitted to the Court by the Patent Office on order of and at the expense of the appellant. Such order should be filed with the notice of appeal, but in no case should it be filed later than 15 days thereafter.

2. In § 2.145, paragraph (a) is amended by adding a sentence at the end; paragraphs (b), (c), and (d) are amended by substituting "paragraph" for "subsection." As amended, § 2.145 reads as follows:

§ 2.145 *Appeal to court and civil action.*

(a) *Appeal to U.S. Court of Customs and Patent Appeals.* An applicant for registration, or any party to an interference, opposition, or cancellation proceeding or any party to an application to register as a concurrent user, hereinafter referred to as inter partes proceedings, who is dissatisfied with the decision of the Trademark Trial and Appeal Board and any registrant who has filed an affidavit or declaration under section 8 of the act or who has filed an application for renewal and is dissatisfied with the decision of the Commissioner (§§ 2.165, 2.184), may appeal to the U.S. Court of Customs and Patent Appeals. The appellant must take the following steps in such an appeal: (1) In the Patent Office give notice to the Commissioner and file the reasons of appeal (see paragraphs (b) and (d) of this section); (2) in the court, file a petition of appeal and a certified transcript of the record within a specified time after filing the reasons of appeal, and pay the fee for appeal, as provided by the rules of the court. The transcript will be transmitted to the Court by the Patent Office on order of and at the expense of the appellant. Such order should be filed with the notice of appeal, but in no case should it be filed later than 15 days thereafter.

(b) *Notice and reasons of appeal.* (1) when an appeal is taken to the U.S. Court of Customs and Patent Appeals, the appellant shall give notice thereof to the Commissioner, and file in the Patent Office, within the time specified in paragraph (d) of this section, his reasons of appeal specifically set forth in writing.

(2) In inter partes proceedings, the notice and reasons must be served as provided in § 2.119.

(c) *Civil action.* (1) Any person who may appeal to the U.S. Court of Customs and Patent Appeals (paragraph (a) of this section), may have remedy by civil action under section 21(b) of the act. Such civilization must be commenced within the time specified in paragraph (d) of this section.

(2) If an applicant or registrant in an ex parte case has taken an appeal to the U.S. Court of Customs and Patent Appeals, he thereby waives his right to proceed under section 21(b) of the act.

(3) If a party to an inter partes proceeding has taken an appeal to the U.S. Court of Customs and Patent Appeals, and any adverse party to the case shall, within 20 days after the appellant shall have filed notice of the appeal to the court (paragraph (b) of this section), file notice with the Commissioner that he elects to have all further proceedings conducted as provided in section 21(b) of the act, certified copies of such notices will be transmitted to the U.S. Court of Customs and Patent Appeals for such action as may be necessary. The notice of election must be served as provided in § 2.119.

(d) *Time for appeal or civil action.* The time for filing the notice and reasons of appeal to the U.S. Court of Customs and Patent Appeals (paragraph (b) of this section), or for commencing a civil action (paragraph (c) of this section), is 60 days from the date of the decision of the Trademark Trial and Appeal Board or the Commissioner, as the case may be. If a petition for rehearing or reconsideration is filed within 30 days after the date of the decision, the time is extended to 30 days after action on the petition. No petition for rehearing or reconsideration filed outside the time specified herein after such decision, nor any proceedings on such petition shall operate to extend the period of 60 days hereinabove provided. The times specified herein are calendar days. If the last day of time specified for appeal, or commencing a civil action falls on a Saturday, Sunday, or legal holiday, the time is extended to the next day which is neither a saturday, Sunday, nor a holiday. If a party to an inter partes proceeding has taken an appeal to the U.S. Court of Customs and Patent Appeals and

an adverse party has filed notice under section 21(a)(1) of the act that he elects to have all further proceedings conducted under section 21(b) of the act, the time for filing a civil action thereafter is specified in section 21(a)(1) of the act.

Effective date. This amendment will become effective upon its publication in the Federal Register (5–11–72).

Dated: May 1, 1972.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Approved: April 28, 1972.

JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

[FR Doc. 72–7159; Filed 5–10–72; 8:49 am]

Published in 37 F.R. 9175; May 11, 1972

[899 O.G. 409]

---

(155) SERVICE OF COURT PAPERS ON COMMISSIONER OF PATENTS

Those having occasion to serve on the Commissioner of Patents papers having to do with court proceedings are hereby reminded that proper service by mail may be effected only by mailing the papers to the Solicitor of the Patent Office as counsel for the Commissioner. Rule 5(b) of the Federal Rules of Civil Procedure provides in pertinent part:

> Whenever under these rules service is required or permitted to be made upon a party represented by an attorney the service shall be made upon the attorney unless service upon the party himself is ordered by the court. Service upon the attorney * * * shall be made by delivering a copy to him or by mailing it to him at his last known address * * *.

Rule 25(b) of the Federal Rules of Appellate Procedure similarly provides, "Service on a party represented by counsel shall be made on counsel." The clerk of the U.S. Court of Customs and Patent Appeals has stated that, inasmuch as the rules of the Court are not specific on the manner of service in patent cases, the procedure outlined herein has the Court's approval.

Accordingly, all service copies of papers filed in court proceedings in which the Commissioner of Patents is a party which are served by mail should be addressed:

"(Name of Solicitor), Solicitor
U.S. Patent Office
Washington, D.C. 20231."

S. WM. COCHRAN,
Apr. 28, 1972. *Solicitor.*

[898 O.G. 1500]

INTERFERENCES

(156) INTERFERENCE—DECLARATION

Effective July 1, 1964, no interference will be declared between pending applications, if there is a difference of more than three (3) months in the effective filing dates of the applications in the case of inventions of a simple character, or a difference of more than six (6) months in other cases, except in exceptional situations, as determined and approved by the Commissioner.

EDWARD J. BRENNER,
June 26, 1964. *Commissioner.*

[804 O.G. 297]

---

(157) INTERFERENCE PRACTICE—AFFIDAVITS UNDER RULE 204(c)

There has been difficulty in a number of cases due to uncertainty on the part of applicants concerning the requirements of affidavits to be filed under Rule 204(c) to secure interference contests with patentees whose filing dates antedate their own by more than three months, and it is hoped that the following explanation will be helpful.

In preparing affidavits under this rule applicants should have in mind the provisions of Rule 228, and especially the following facts:

1. That after these affidavits are forwarded by the Primary Examiner for the declaration of an interference they will be examined by a Board of Patent Interferences.

2. If the affidavits fail to establish with adequate corroboration acts and circumstances which would prima facie entitle applicant to an award of priority relative to the effective filing date of the patentee, an order will be issued concurrently with the notice of interference, requiring applicant to show cause why summary judgment should not be rendered against him.

3. Additional affidavits in response to such order will not be considered unless justified by a showing under the provisions of Rule 228, and if the applicant responds the patentee will receive from the applicant a copy of the response (Rule 247) and from the Patent Office a copy of the original showing (Rule 228), and will be entitled to present his views with respect thereto.

4. It is the position of the Board of Patent Interferences that all affidavits submitted must describe acts which the affiants performed or observed or circumstances observed, such as structure used and results of use or test, except on a proper showing as provided in Rule 204(c). Statements of conclusion, for example, that the invention of the counts was reduced to practice, are generally considered to be not acceptable. It should also be kept in mind that documentary exhibits are not self-proving and require explanation by an affiant having direct knowledge of the matters involved. However, it is not necessary that the exact date of conception or reduction to practice be revealed in the affidavits or exhibits if the affidavits aver observation of the necessary acts and facts, including documentation when available, before the patentee's effective filing date. On the other hand, where reliance is placed upon diligence, the affidavits and documentation should be precise as to dates from a date just prior to patentee's effective filing date. The showing should relate to the essential factors in the determination of the question of priority of invention as set out in 35 U.S.C. 102(g).

5. The explanation required by Rule 204(c) should be in the nature of a brief or explanatory remarks accompanying an amendment, and should set forth the manner in which the requirements of the counts are satisfied and how the requirements for conception, reduction to practice or diligence are met.

GEORGE W. BOYS,
Apr. 21, 1966. *Chairman, Board of Patent Interferences.*

[826 O.G. 712]

---

(158) DESIGNATION OF INTERFERENCE RECORD RELIED UPON

During the taking of testimony in an interference it is frequently not clear just what testimony is necessary to a party's case, since the contentions to be made by the opposing party are not known, and in the case of a junior party it is frequently not known whether or not the senior party will take testimony. Therefore counsel taking testimony will normally cover all matters which might possibly have an effect on his case. Then, in preparing his briefs it may become apparent that certain portions of his record have no real significance as to issues involved. A review of these portions by the Board of Patent Interferences is thus unnecessary.

Accordingly, in order to reduce the time required by the Board of Patent Interferences to study the record, and to more effectively and efficiently decide the issues involved, counsel relying on an evidentiary record in interference cases are requested to file a statement as to the portions of their record upon which they rely. Such statement should be included in the briefs of the respective parties.

EDWIN L. REYNOLDS,
First Assistant Commissioner.

[846 O.G. 679 (Jan. 16, 1968)]

(159) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER 1—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 1—RULES OF PRACTICE IN PATENT CASES

Discovery During Interference Proceedings

These rule changes are intended to provide for: (1) Consideration of action sought by a party to a patent interference proceeding outside the period prescribed therefor where the delay in seeking such action is justified; (2) the designation of a specific period for discovery and the preparation for the taking of testimony; (3) specified discovery upon request (a) during the period for preparation for testimony as to evidence and testimony to be offered by junior parties and (b) after completion of testimony in chief of the junior parties, as to evidence and testimony to be offered by senior parties; (4) the ordering of additional discovery upon motion by a party where the interest of justice so requires; and (5) sanctions by the Board of Patent Interferences where there is noncompliance with a requirement of a rule or an order by the board.

The proposal to amend Title 37, Code of Federal Regulations, by revising §§ 1.245 and 1.251 and by adding a new § 1.287 was published in the December 31, 1970, issue of the Federal Register (35 F.R. 20011).

All interested persons were given an opportunity to participate in the rule-making process by submission of comments in writing and in person at an oral hearing held on February 19, 1971. The rules are being adopted after full and careful consideration of all the material submitted. The departures from the published text reflect certain of the views expressed in the submitted material.

Effective Date. This amendment shall become effective 30 days after publication in the Federal Register and shall apply only to those interferences in which the times for taking testimony are set on or after such effective date.

In consideration of the comments received and pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), Part 1 of Title 37, Code of Federal Regulations is hereby amended as follows:

1. Section 1.245 is revised to read as follows:

§ 1.245 *Extension of time.*

Extensions of time in any case not otherwise provided for may be had by stipulation of the parties, subject to approval, or on motion duly brought, sufficient cause being shown for such extension. A motion not timely made may be considered upon a showing of sufficient cause as to why such motion was not timely presented.

2. Section 1.251, paragraphs (a), (b), (c), and (d) are revised, and a new paragraph (e) is added as follows:

§ 1.251 *Assignment of times for discovery and taking testimony.*

(a) A period for preparation of testimony will be set in which all parties should complete discovery and other preparatory activities.

(b) Times will be assigned in which the junior party shall complete his testimony in chief, and in which the other party shall complete the testimony on his side, and a further time in which the junior party may take rebutting testimony, but he shall take no other testimony. If there be more than two parties to the interference, the times for taking testimony will be so arranged that each shall have an opportunity to prove his case against prior parties and to rebut their evidence, and also to meet the evidence of junior parties.

(c) Times for preparation of testimony, for compliance with § 1.287(a) and for taking of testimony will ordinarily be assigned in notices sent to the parties after motions under § 1.231 have been disposed of or, if no such motions have been filed, after the close of the motion period (§ 1.231).

(d) Testimony shall be taken during the times assigned in accordance with §§ 1.271 to 1.286.

(e) The date for final hearing will ordinarily be set in separate notices.

3. A new § 1.287 is added as follows:

§ 1.287 *Discovery.*

(a)(1) Each party who expects to take testimony must serve on each opposing party who requests service the following:

(i) A copy of each document in his possession, custody, or control and upon which he intends to rely,

(ii) A list of and a proffer of reasonable access to things in his possession, custody, or control and upon which he intends to rely, and

(iii) A list giving the names and addresses of all persons whom he intends to call as witnesses and indicating the relationship of each person to the invention in issue.

(2) Dates for compliance with subparagraph (1) of this paragraph will be set in accordance with the following:

(i) The date by which all parties may request service shall be not less than 10 days from the date of the order setting testimony times;

(ii) The date for service by all junior parties shall be not less than 30 days from the date of the order setting such times;

(iii) The date for service by the senior party shall be not less than 10 days from the date set for the close of testimony in chief of all junior parties.

(3) Where more than two parties are involved and one of the junior parties is not entitled to take testimony as to a more senior party, the requirements of subparagraphs (1) and (2) of this paragraph shall not be applicable as between such parties.

(b) The provisions of paragraph (a) of this section are without prejudice to the right of a party, where appropriate, to obtain production of documents or things during cross-examination of an opponent's witness or during his own period for rebuttal testimony.

(c) Upon motion (§1.243) brought by a party during the period for preparation of testimony, or thereafter as authorized under § 1.245, and upon a showing that the interest of justice so requires, the Board of Patent Interferences may order additional discovery as to matters under the control of a party within the scope of the discovery rules of the Federal Rules of Civil Procedure, specifying the terms and conditions of such additional discovery. An order by the Board granting or denying a motion under this paragraph shall not be subject to review prior to a decision awarding priority.

(d)(1) A party will not be permitted to rely on any document or thing in his possession, custody, or control, or on any witness, not listed and served by that party as required by paragraph (a) of this section, except upon a promptly filed motion accompanied by the proposed additional documents or lists together with a showing of sufficient cause as to why they were not served by the date set pursuant to paragraph (a) of this section.

(2) Any failure to comply with an order under the provisions of paragraph (c) of this section may be considered by the Board of Patent Interferences as basis for applying appropriate restrictions against the party failing to comply, for holding certain facts to have been established, and in an appropriate case for awarding priority against him, or for taking such other action as may be deemed appropriate.

(e) The parties may by agreement among themselves modify any of the foregoing requirements consistent with the schedule of times for taking testimony and filing the record. In the absence of such agreement, discovery will not be permitted prior to the period set for the preparation of testimony.

Dated: May 6, 1971.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Approved:

JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

[FR Doc. 71-6617; Filed 5-11-71; 8:49 a.m.]

Published in 36 F.R. 8732; May 12, 1971

[887 O.G. 726]

Rule 283

(160) TESTIMONY TAKEN IN ANOTHER INTERFERENCE OR ACTION

A discovery proceeding under the control of a U.S. District Court, ancillary to an interference proceeding, is now considered to be an "action" within the meaning of Rule 283. Accordingly, "pretrial depositions" taken in a discovery proceeding in accordance with the Federal Rules of Civil Procedure and under court control may be used in the interference

as to which the discovery proceeding is ancillary, subject to all other provisions of Rule 283.

RICHARD A. WAHL,
May 2, 1972. *Assistant Commissioner.*

[898 O.G. 1500]

---

(161) INTERFERENCE PRACTICE

[37 CFR Parts 1, 5]

Notice of Proposed Rule Making

Notice is hereby given that, pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6) the Patent Office proposes to amend Title 37 of the Code of Federal Regulations by revising §§ 1.225, 1.231 (a)(5) and (d), 1.251(a), 1.253(f), 1.272(c), 1.277(a), and 1.281, and revoking paragraph (b) of § 5.3.

All persons are invited to present their views, objections, recommendations or suggestions in connection with the proposed changes to the Commissioner of Patents, Washington, D.C. 20231 on or before October 10, 1972. No oral hearing will be held. Any written comments or suggestions may be inspected by any person, upon written request, a reasonable time after the closing date for submitting comments.

The proposed rule changes are intended to clarify the current practice before the Board of Interferences and to correct several inconsistencies.

In § 1.225, it is proposed that the 20-day period be changed to 30 days. It is also proposed that this rule be amended to make explicit the practice which has been in effect for a long time of treating oppositions to certain types of motions as entitling a junior party to a final hearing even though he would otherwise be subject to judgment on the record.

In § 1.231(a) a reference to paragraph (d) is proposed. It is proposed that a new sentence be added to § 1.231(d) which would defer to the final hearing consideration of motions for the conversion of inventorship filed during the testimony taking period.

It is proposed to amend § 1.251(a) to make it consistent with § 1.287(a).

Paragraph (f) of § 1.253 is proposed to be amended to specify that documentary exhibits should not be included in the bound volumes of testimony.

It is proposed that a reference to § 1.253(c) be added in the last sentence of § 1.272(c).

The proposed amendment of § 1.277(a) would not require consecutive numbering of all questions if paper with numbered lines is used.

The proposed amendment to § 1.281 would clearly indicate that statements may be either under oath or declaration.

The proposed revocation of paragraph (b) of § 5.3 would remove an obsolete procedure from the regulations. Under current practice, applications under secrecy order are not placed into interference until after the secrecy order is removed.

The text of the proposed amendment sections is as follows:

§ 1.225 *Failure of junior party to file statements or to overcome filing date of senior party.*

If a junior party to an interference fails to file a preliminary statement, or if his statement fails to overcome the prima facie case made by the filing date of the application of another party, judgment on the record will be entered against such junior party unless he has filed a motion under § 1.231, within the time set for such motions, for some action in the interference or he has opposed a motion under § 1.231(a)(2), (3), (4), or (5). If such a motion has been timely filed but does not result in action in the interference which will remove the basis for a judgment on the record, such judgment on the record will be entered unless the motion related to matters which may be reviewed at final hearing under § 1.258, and within 30 days of the decision disposing of the motion the junior party concerned requests that final hearing be set to review such matters. Also, such a junior party may within such 30-day period request a final hearing to review such a matter raised by his opposition to a motion under § 1.231(a)(2), (3), or (4) which was granted over his opposition.

§ 1.231 *Motions before the primary examiner.*

(a) • • •

(5) To amend an involved application by adding or removing the names of one or more inventors as provided in § 1.45. (See paragraph (d) of this section.)

• • • • •

(d) All proper motions as specified in paragraph (a) of this section, or of a similar character, will be transmitted to and considered by the primary examiner without oral argument, except that consideration of a motion to dissolve will be deferred to final hearing before a Board of Patent Interferences where the motion urges unpatentability of a count to one or more parties which would be reviewable at final hearing under § 1.258(a) and such unpatentability is urged against a patentee or has been ruled upon by the Board of Appeals or by a court in ex parte proceedings. Also consideration of a motion to add or remove the names of one or more inventors may be deferred to final hearing if such motion is filed after the times for taking testimony have been set. Requests for reconsideration will not be entertained.

• • • • •

§ 1.251. *Assignment of times for discovery and taking testimony.*

(a) A period for preparation for testimony will be set in which all parties should complete discovery and other preparatory activities, except for service by the senior party required by § 1.287(a)(1) which is governed by § 1.287(a)(2)(iii).

• • • • •

§ 1.253 *Copies of the testimony.*

• • • • •

(f) When the copies of the record are in typewritten form, they must be clearly legible on opaque unglazed, durable paper approximately 8½ by 11 inches in size (letter size) and one of the three copies must be a ribbon copy, but need not be executed by the certifying officer. (The certified transcript may be a properly executed carbon copy. See § 1.277.) The typing shall be on one side of the paper, in not smaller than pica type; and double-spaced with a margin of 1½ inches on the left-hand side of the page. The sheets shall be bound at their left edges, in such manner to lie flat when opened, in a volume or volumes of convenient size (approximately 100 pages per volume is suggested) provided with covers. Documentary exhibits should not be included in bound volumes of testimony. Multigraphed or otherwise reproduced copies conforming to the standards specified will be accepted.

• • • • •

§ 1.272 *Manner of taking testimony of witnesses.*

• • • • •

(c) By agreement of the parties, the testimony of any witness or witnesses of any party, may be submitted in the form of an affidavit by such witness or witnesses. The parties may stipulate what a particular witness would testify to if called, or the facts in the case of any party may be stipulated. When evidence is submitted in one of these forms, four copies of such affidavit or stipulated testimony (§ 1.253 (a), (c), (f)) are required.

§ 1.277 *Form of deposition.*

(a) The testimony must be written on letter size paper, with a wide margin on the left-hand side of the page, and with the writing on one side only of the sheet. The pages must be serially numbered throughout the entire record for each party (§ 1.253(c)) and the name of the witness must be plainly and conspicuously written at the top of each page. The questions propounded to each witness must be consecutively numbered, unless paper with numbered lines is used, and each question must be followed by its answer.

• • • • •

§ 1.281 *Additional time for taking testimony.*

If either party has proceeded with the taking of testimony on his behalf but is unable to complete his case because of inability to procure the testimony of a witness or witnesses within the time limited and said time has expired, and he desires additional time for such purpose, he must file a motion, accompanied by a statement under oath or in the

form of a declaration setting forth specifically the cause of such inability, the name or names of the witness or witnesses, the fact expected to be proved by such witness or witnesses, the steps which have been taken to procure such testimony, and the dates on which efforts have been made to procure it. (See § 1.245 for extensions of time in other situations.)

§ 5.3 [*Amended*]

In § 5.3, it is proposed that paragraph (b) be revoked.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Approved: June 16, 1972.

JAMES H. WAKELIN, Jr.,
Assistant Secretary for Science and Technology.

[FR Doc. 72-9990 Filed 6-29-72; 8:54 am]

[901 O.G. 2]

CORRECTION OF ERRORS

(162) CERTIFICATES OF CORRECTION LISTING

Certificates of Correction are issued every Tuesday. Beginning on January 7, 1969, each issue of the OFFICIAL GAZETTE will numerically list all U.S. patents having Certificates of Correction issuing that Tuesday. The list will appear under the heading "Certificates of Correction Issued (date)."

RICHARD A. WAHL,
Nov. 22, 1968. *Assistant Commissioner.*

[857 O.G. 1005]

(163) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 1—RULES OF PRACTICE IN PATENT CASES

Issuance of Certificates of Correction

On October 11, 1968, notice of proposed rulemaking regarding the amendment of §§ 1.322 and 1.323 of Title 37, Code of Federal Regulations, dealing with the issuance of certificates of correction, was published in the Federal Register (33 F.R. 15218). Interested persons were given 40 days in which to submit written comments, suggestions, or objections regarding the proposed amendments.

Full consideration having been given to all comments that were received in response to the public notice, the amendments originally proposed are hereby adopted without change and are set forth below.

As a result of these rule changes it will no longer be necessary for the patentee to forward his patent to the Patent Office when requesting the issuance of a certificate of correction. Upon receipt of an appropriate request, a certificate of correction will be issued and forwarded to the patentee, with an authorization permitting the patentee to physically attach same to the patent.

In connection with this change of procedure, arrangements have been made with Shepard's Citations to indicate under its listing of patents in its set entitled "Shepard's United States Citations, Patents and Trademarks" those patents for which certificates of correction have been issued. Beginning in April of this year the information will be published in that set's quarterly cumulative supplement and will appear in the bound volume thereof, when it is released.

Effective date. These amendments shall become effective upon publication in the Federal Register.

Dated: Mar. 18, 1969.

EDWARD J. BRENNER,
Commissioner of Patents.

Approved:

ALLEN V. ASTIN,
Assistant Secretary for Science and Technology.

* * * * *

[861 O.G. 680]

(164) NEW PROCEDURE FOR HANDLING CERTIFICATES OF CORRECTION

In compliance with amended Rules 322 and 323, and to expedite the issuance of certificates and reduce printing costs, practitioners are urged to submit the text of the certificate on a special form which could serve as the final copy for use in direct process reproduction (offset printing) of the certificate of correction. The *request* for issuance of the certificate (together with the fee where the error is due to applicant's mistake) should be in a separate letter accompanied by two copies of the form and a self-addressed envelope.

Where the recommended format is used and approved, one copy of said form, duly certified, will be returned to the patentee for attachment to his copy of the patent. This will eliminate the present necessity for returning the patent when requesting a certificate. The other copy of the form will be used for direct offset printing of copies of the certificate which, as heretofore, will be attached to every printed copy of the patent subsequently sold or distributed.

Copies of the form are obtainable for reproduction purposes from Correspondence and Mail Branch and from the receptionist in Bldg. 3, Crystal Plaza. Below is a sample form illustrating a variety of corrections and the suggested manner of setting out the format. Particular attention is directed to:

a. Identification of the exact point of error by reference to column and line number of the printed patent.
b. Conservation of space on the form by *typing* single space, beginning two lines down from the printed message.
c. Starting the correction to each separate column as a sentence, and using semi-colons to separate corrections within said column, where possible.
d. Two inch space left blank at bottom for signature of attesting officer.
e. Use of quotation marks to enclose the exact subject matter to be deleted or corrected; use of double hyphens (--) to enclose subject matter to be added, except for formulas.
f. Where a formula is involved, setting out only that portion thereof which is to be corrected.

Where the recommended format is not used or where the nature of the subject matter is such that it is more expedient to print by the direct image offset technique, e.g., entire sheet(s) of drawing or page(s) of specification omitted, multiple pages of corrections, intricate chemical formulas, etc., Issue and Gazette Branch will prepare the certificate as heretofore. Patentee will receive a copy for attachment to his copy of the patent.

RICHARD A. WAHL,
Apr. 1, 1969. *Assistant Commissioner.*

UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 5,667,999 Dated April 1, 1969

James W. Worth

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

In the drawings, Sheet 3, Fig. 3, the reference numeral 225 should be applied to the plate element attached to the support member 207. Column 1, lines 45 to 49, the left-hand formula should appear as follows:

Column 2, formula XXXV, that portion of the formula reading

should read

Formula XXXVII, that portion of the formula reading "-CH_2CH-" should read -- -CH_2CH_2- --. Column 2, line 68 and column 3, lines 3, 8 and 13, the claim reference numeral "2", each occurrence, should read -- 1 --. Column 10, line 16, cancel beginning with "12. A sensor device" to and including "tive strips." in column 11, line 8, and insert the following claim:

12. A control circuit of the character set forth in claim 1 and for an automobile having a convertible top, and including; means for moving said top between raised and lowered retracted position; and control means responsive to said sensor relay for energizing the top moving means for moving said top from retracted position to raised position.

[862 O.G. 2]

ABSTRACTS

(165) EXAMINATION REQUIREMENTS AND PROCEDURE IN RELATION TO ABSTRACTS OF THE DISCLOSURE

The newly adopted amendment to Rule 72 which requires the submission of an *Abstract of the Disclosure* is being applied to patent applications which receive a first Office action of any kind from the Examiner on or after November 1, 1966; however, on cases filed before January 1, 1967, abstracts will not be required where the application is passed to issue on the first action.

The Examiner in the first office action on and after November 1, 1966, should require the submission of a brief abstract of the technical disclosure in the specification, the abstract to appear immediately after the title of the invention and preceding the disclosure in a separate paragraph under the heading "Abstract of the Disclosure." The following form paragraph may be used to make the requirement:

"An abstract is required, see new Rule 72(b)."

Responses to such actions should be treated under Rule 111(b) practice like any other formal matter.

Upon passing the case to issue, the Examiner should see that the abstract is an adequate and clear statement of the contents of the disclosure and generally in line with the guidelines in the following paragraphs; the abstract shall be changed by Examiner's Amendment in those instances where deemed necessary.

1. The purpose of the abstract is to provide a non-legal technical statement of the contents of the disclosure. The abstract should be an objective condensation (rather than a description) of the disclosure, in clear and concise language. Statements as to the relative merits or value, or speculative applications of the invention should be omitted.

2. The abstract should be especially designed to serve as a searching-scanning tool for the scientist, engineer or researcher in the particular art, and therefore should serve to indicate whether there is a need for consulting the full specification for details.

3. The abstract should be as brief as the subject permits. A single paragraph of 50–100 words should be sufficient.

4. Especially in the chemical field, the abstract should include a statement of the utility of the subject matter of the disclosure, particularly that which is related to the invention.

5. The abstract should be separate and independent of the "Summary of the Invention." One of the purposes of the abstract is to determine quickly the nature and gist of the technical disclosure.

RICHARD A. WAHL,
Oct. 7, 1966. *Assistant Commissioner.*

[831 O.G. 1328]

---

(166) CHANGE IN CONTENT OF THE PATENTS SECTION OF THE OFFICIAL GAZETTE

In keeping with the Patent Office program to encourage the use of patents in the scientific, engineering and business communities, as well as the patent profession, a change in the content of the patents section of the OFFICIAL GAZETTE is being made.

Beginning with the first issue of the OFFICIAL GAZETTE in January 1968, a copy of the abstract of each patent where an abstract is available will appear, in lieu of the claim. This change in content is being made in order that patent information may be better utilized by the patent public.

In addition to the regular issue of the OFFICIAL GAZETTE an extract of the patents section, i.e., the descriptive matter relating to patents only, will be made available. The subscription rate for the patents section extract only for the first six months period beginning with the first issue in January 1968, will be twenty-seven dollars ($27.00) and one dollar and twenty-five cents ($1.25) for a single copy. The extract will be mailed under the direction of the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402, to whom all subscriptions should be made payable and all communications addressed. The title of the extract will be "Official Gazette—Patent Abstracts Section."

It is to be noted that the Government Printing Office has determined that the subscription rate for the regular issue of the OFFICIAL GAZETTE will be increased to sixty-seven dollars ($67.00) for the subscription year beginning January 1968, and the price of individual copies will be increased to one and a half dollars ($1.50). The increased rate is not related to the new program.

EDWARD J. BRENNER,
Sept. 25, 1967. *Commissioner of Patents.*

[843 O.G. 747]

---

(167) PARAGRAPH REQUIREMENTS FOR ABSTRACTS

In view of some difficulties experienced in determining the extent of the abstracts, the Patent Office is supplementing the Notice of October 7, 1966 (831 O.G. 1328).

An abstract should usually be limited to a single paragraph, under the heading, "Abstract of the Disclosure" as stated in Rule 72(b) and MPEP 608.01(b).

In unusual circumstances where the application disclosure does not lend itself to a single paragraph abstract, a plural paragraph abstract may be acceptable. An example of these rare situations would be an application having claims to different statutory classes, it being recognized that an abstract of the disclosure should be written to include the advancement in the art.

To avoid errors in printing where a plural paragraph abstract is deemed necessary and appropriate, the complete abstract must be set off by suitable headings to indicate where the abstract begins and ends. Appropriate headings useable between the abstract and the subsequent description are to be found in the "Guidelines for Drafting a Model Patent Application Under the Revised Rules" (832 O.G. 5; MPEP 608.01(a)).

RICHARD A. WAHL,
Feb. 16, 1968. *Assistant Commissioner.*

[854 O.G. 287]

---

(168) PATENT ABSTRACTS

The provision in Rule 72(b) of the Rules of Practice in Patent Cases, relating to inclusion of a "brief abstract of the technical disclosure" in applications for patent, has now been in effect for two and one-half years.

Instructions regarding abstract preparation were published at 831 O.G. 1328, October 25, 1966, and at about the same time a pamphlet entitled "Guidelines for the Preparation of Patent Abstracts" was published and made available to personnel concerned with the preparation and review of abstracts of the type noted.

Abstracts are becoming more and more significant in the field of mechanized and computerized prior art retrieval. It is therefore important that they reach the optimum quality level at the earliest possible date.

During the past year abstracts, in a random sample of approximately 1000 allowed applications, were audited or reviewed for purposes of determining degree of compliance with the aforenoted instructions and guidelines. Steady improvement in the quality of the abstracts was noted in the course of the review. The review clearly indicated, however, a need for further improvement as well as a need for certain modifications and revisions in the earlier published guidelines. There also appeared to be a need for reemphasis of portions of the guidelines.

Accordingly, a revised set of guidelines consonant with the needs suggested by the audit have been promulgated, and are set forth below for use in the preparation and review of patent abstracts.

GUIDELINES FOR THE PREPARATION OF PATENT ABSTRACTS

Background

The Rules of Practice in Patent Cases require that each application for patent include an Abstract of the Disclosure, Rule 72(b).

The content of a patent abstract should be such as to enable the reader thereof, regardless of his degree of familiarity with patent documents, to ascertain quickly the character of the subject matter covered by the technical disclosure and should include that which is new in the art to which the invention pertains.

The abstract is not intended nor designed for use in interpreting the scope or meaning of the claims, Rule 72(b).

Content

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is *new* in the art to which the invention pertains.

If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure.

If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement.

In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or a use thereof.

If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following: (1) if a machine or apparatus, its organization and operation; (2) if an article, its method of making; (3) if a chemical compound, its identity and use; (4) if a mixture, its ingredients; (5) if a process, the steps. Extensive mechanical and design details of apparatus should not be given.

With regard particularly to chemical patents, for compounds or compositions, the general nature of the compound or composition should be given as well as the use thereof, e.g., "The compounds are of the class of alkyl benzene sulfonyl ureas, useful as oral anti-diabetics." Exemplification of a species could be illustrative of members of the class. For processes, the type reaction, reagents and process conditions should be stated, generally illustrated by a single example unless variations are necessary.

Language and Format

The abstract should be in narrative form and generally limited to a single paragraph within the range of 50 to 250 words. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should sufficiently describe the disclosure to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "This disclosure concerns," "The disclosure defined by this invention," "This disclosure describes," etc.

Responsibility

Preparation of the abstract is the responsibility of the applicant. Background knowledge of the art and an appreciation of the applicant's contribution to the art are most important in the preparation of the abstract. The review of the abstract, for compliance with these guidelines, with any necessary editing and revision on allowance of the application is the responsibility of the examiner.

Sample Abstracts

A heart valve with an annular valve body defining an orifice and having a plurality of struts forming a pair of cages on opposite sides of the orifice. A spherical closure member is captively held within the cages and is moved by blood flow between open and closed positions in check valve fashion. A slight leak or backflow is provided in the closed position by making the orifice slightly larger than the closure member. Blood flow is maximized in the open position of the valve by providing an inwardly convex contour on the orifice-defining surfaces of the body. An annular rib is formed in a channel around the periphery of the valve body to anchor a suture ring used to secure the valve within a heart.

A method for sealing, by application of heat, overlapping closure panels of a folding box made from paperboard having an extremely thin coating of moisture-proofing thermoplastic material on opposite surfaces. Heated air is directed at the surfaces to be bonded, the temperature of the air at the point of impact on the surfaces being above the char point of the board. The duration of application of heat is made so brief, by a corresponding high rate of advance of the boxes through the air stream, that the coating on the reverse side of the panels remains substantially non-tacky. The bond is formed immediately after heating within a period of time for any one surface point less than the total time of exposure to heated air of that point. Under such conditions the heat applied to soften the thermoplastic coating is dissipated after completion of the bond by absorption into the board acting as a heat sink without the need for cooling devices.

Amides are produced by reacting an ester of a carboxylic acid with an amine, using as catalyst an alkoxide of an alkali metal. The ester is first heated to at least 75° C. under a pressure of no more than 500 mm. of mercury to remove moisture and acid gases which would prevent the reaction, and then converted to an amide without heating to initiate the reaction.

RICHARD A. WAHL,
Apr. 23, 1969. *Assistant Commissioner.*

[862 O.G. 653]

---

(169) DISCONTINUATION OF THE PUBLICATION "PATENT ABSTRACTS SECTION OF THE OFFICIAL GAZETTE"

Effective Mar. 31, 1970, the Patent Office will no longer print the publication "Patent Abstracts Section of the Official Gazette." Reasons for this decision are the desire to incur a saving in printing costs, the same information now appears in the OFFICIAL GAZETTE, and the number of subscribers no longer warrants a separate publication.

The Superintendent of Documents, U.S. Government Printing Office, will contact subscribers to the "Patent Abstracts" for appropriate action regarding their subscriptions.

CLARENCE A. KALK,
Acting Assistant Commissioner for Administration.
Feb. 9, 1970.

[872 O.G. 1]

---

(170) CLAIMS VERSUS ABSTRACTS FOR PUBLICATION IN THE PATENT OFFICIAL GAZETTE

Abstracts have been required for all patent applications filed since January 1, 1967. Subsequent to the requirement for abstracts, the Office began substituting abstracts for patent claims in the OFFICIAL GAZETTE. At the present time, abstracts ars used exclusively in the OFFICIAL GAZETTE to describe the inventions for which patents issue each week.

Over the last several months, the Office has become increasingly aware of the disparity of views which exist regarding the merits of the publication of claims or abstracts in the OFFICIAL GAZETTE. The utilization of abstracts in the OFFICIAL GAZETTE was initially base on a desire to make that publication more useful to the non-patent community. However, it now appears that a significant portion of the patent community, especially in the chemical area, would prefer the publication of claims in the OFFICIAL GAZETTE as more useful than the publication of abstracts.

To assist the Office in resolving this issue, it is requested that interested parties submit their comments in writing prior to January 1, 1973. Such comments should be addressed to the Commissioner of Patents, Washington, D.C., 20231.

ROBERT GOTTSCHALK,
May 22, 1972. *Commissioner of Patents.*

[899 O.G. 820]

REFERENCES

(171) CITATION OF PUBLICATIONS AND FOREIGN PATENTS

Foreign Patents

In accordance with Rule 107, for each foreign patent cited, there should be indicated the number of sheets of drawing and pages of specification and also the sheet number(s) and page number(s) specifically relied upon if less than the entire disclosure is used. Because it is essential to conserve space in the Examiner's file of applications and to minimize the cost to applicant under the automatic supply of references cited, whenever the total number of sheets and pages in any foreign patent exceeds ten, the Examiner should keep the total relied on as near to ten as possible. Applicants who desire a copy

of the complete foreign patent or of the portion not "relied on" must order it, not through the automatic supply system, but in the usual manner.

Publications

Publications such as German allowed applications and Netherlands printed specifications should be similarly handled. With other publications such as books, periodicals and catalogues, the specific pages relied upon should be cited. If the copy relied upon is located only in the Group making the action (there is no call number), the additional information, "Copy in Group —" should be given.

RICHARD A. WAHL,
Jan. 4, 1965. *Acting Superintendent, Patent Examining Corps.*

[811 O.G. 293]

(172) AUTOMATIC FURNISHING FREE COPIES OF CITED REFERENCES

Commencing November 1, 1965, one complete set of references cited by Examiners in Office Actions will be automatically supplied without charge simultaneously with the mailing of the actions.

Additional copies of references desired must be properly identified and purchased from the regular Patent Office copy supply facilities.

This supersedes the notice, "Providing Copies of Cited References to Applicants" which was published in 809 O.G. 317 on December 8, 1964.

C. A. KALK,
Oct. 1, 1965. *Director of Administration.*

[819 O.G. 1335]

(173) CITATION OF REFERENCES AT TIME OF ALLOWANCE

Commencing March 15, 1966, references cited by examiners when passing an application to issue will no longer be supplied under the automatic plan. Copies of these references, if desired, must be purchased from the regular Patent Office copy supply facilities.

Except as above indicated references cited by examiners in Office actions will continue to be automatically supplied without charge simultaneously with the mailing of the actions.

This modifies the notice, "Automatic Furnishing Free Copies of Cited References," which was published in 820 O.G. 1 on November 2, 1965.

RICHARD A. WAHL,
Feb. 24, 1966. *Assistant Commissioner of Patents.*

[824 O.G. 805]

(174) ORDERS FOR REFERENCES CITED IN SHORTENED STATUTORY PERIOD ACTIONS

Effective immediately, the Patent Office will no longer supply copies of references cited on a "Special Handling" basis without the usual additional charge. This service was announced in the OFFICIAL GAZETTE on June 2, 1964.

The Patent Office has, since November 1, 1965, been furnishing one complete set of references cited by Examiners in Office Actions automatically, without charge, simultaneously with the mailing of the actions.

[825 O.G. 811 (Apr. 19, 1966)]

(175) POLICY RE: VOLUNTARY CITATION OF PRIOR ART BY APPLICANTS

Effective immediately, the following policy is being adopted in the hope of encouraging more frequent and meaningful citation of prior art by applicants and their attorneys on a voluntary basis.

Prior art cited by applicants or their attorneys within thirty days of the filing of a patent application, or prior to the first Office action, whichever is later, will be fully considered by the Examiner, will be part of the official record, and will be included in the list of references cited in the patented file and in the printed patent provided the applicant:

(a) Limits the number of references cited to not more than five separate items, unless a satisfactory explanation is given as to why more than five citations are necessary, and submits one copy of each of the references; and

(b) Submits a detailed discussion of the references, which discussion points out, with the particularity required by Rule 111(b) and (c), how the claimed subject matter is distinguishable over the references.

References cited by applicants or attorneys under the "special" examining procedure announced on March 2, 1965, and published in 812 O.G. 953 will also be included in the list of references cited in the patented file and printed patent.

Prior art cited by applicants and attorneys under the practice set forth in the notices published in 797 O.G. 733; 802 O.G. 601; 804 O.G. 1 and 805 O.G. 294 will no longer be listed in the printed patent.

EDWARD J. BRENNER,
Apr. 13, 1967. *Commissioner of Patents.*

[837 O.G. 1032]

(176) REFERENCE CITATIONS IN CONTINUATION APPLICATIONS

Effective December 1, 1967, the Office will discontinue the practice of furnishing, automatically and without charge, copies of references cited in continuation applications if they had been previously cited in the parent application.

In the rare instance where no art is cited in a continuation application, all the references cited during the prosecution of the parent application will be listed at allowance for printing in the patent.

Other continuing applications, including continuation-in-part and divisional applications, are not affected by this change.

RICHARD A. WAHL,
Nov. 1, 1967. *Assistant Commissioner.*

[846 O.G. 1022]

(177) PATENT CLASSIFICATION

As a service to the public, effective with the issue of December 10, 1968, all patents will contain at the end of the specification, after the "List of References," a list of all classes and subclasses in the U.S. Classification System into which the patent was cross-referenced at the time of issue. This listing will be headed "U.S. Cl.—X.R."

Beginning with the issue of January 7, 1969, all patents will also include International Patent Classifications in the heading and identified as "Int. Cl."

RICHARD A. WAHL,
Nov. 29, 1968. *Assistant Commissioner.*

[858 O.G. 1029]

(178) MACHINE SEARCH SERVICE

The Mechanized Search Service presently used by the Patent Office in making examiner searches in the field of Data Processing is offered for public use under the conditions and procedures prescribed herein.

This system is available as a punched card file for an initial fee of $40.00 each. The instruction manual "Search System Manual for the Field of Data Processing-ICIREPAT System DP" is included as part of the "package." A renewal fee of $35.00 per year entitles the subscriber to receive a set of cards for new issues.

This file which presently exists for mechanized searching consists of:

Field	Class	Subclass	File content [1]
Data processing	235	157	2,965 U.S. Patents.
	340	172.5	622 Literature articles.

[1] Approximate number of documents in the files as of June 30, 1971.

The scope and organization of this file is described in the publication "Search System Manual for the Field of Data Processing-ICIREPAT System DP."

A substantial portion of this publication is devoted to the technique of preparing the code sheet which is the means provided for expressing the search query for machine handling. Effective use of the mechanized search system and the achievement of competent results are dependent upon understanding and care in applying the coding information offered in this publication.

The Patent Office will accept requests for machine searches submitted on code sheets prepared in accordance with instructions contained in the aforedescribed publication. Requests received in any other form will not be accepted, as the Patent Office will not assume the responsibility for the formulation of a search query or the representation of a query in coded form. The Patent Office will, however, provide assistance to persons seeking aid in resolving specific questions which may arise in completing the code sheet prior to submitting the search request. The code sheet serves as the query form for searches on this system.

One or more Examiners have been designated to provide such assistance. A request for a conference on mechanized search questions in the field of Data Processing may be directed to the Supervisory Primary Examiner of Group Art Unit 237.

A search constitutes all of the machine and related operations required to retrieve from a data file, information contained therein which fulfills the search instructions represented on a code sheet. When several code sheets are required to cover the full search need, each code sheet will constitute a search. A search will be considered to be complete and proper even under circumstances in which proper operation of the system produces output representing documents which, while fulfilling the coded requirements, are determined by the user to lack pertinence or relevance in any or a sufficient degree; or, conversely, fails to produce an output.

The cost per search, which includes a list of the document references retrieved, is $5.00. Copies of all U.S. patent and non-patent literature references will be supplied, if requested as part of the search service, for additional cost at established rates, chargeable to a deposit account maintained by the search purchaser with the Patent Office.

Code sheets for the machine search file may be obtained from the Patent Office. Address request to the Patent Office, Office of Search Systems and Documentation, Washington, D.C., 20231.

After any necessary consultation with the Examiner in preparing the search query, address search requests together with the completed code sheet and fee to the Commissioner of Patents, Washington, D.C., 20231. Attention should be directed to the Office of Search Systems and Documentation, Office of the Adminstrator.

[891 O.G. 886 (Oct. 19, 1971)]

---

(179) CONCORDANCE: UNITED STATES PATENT CLASSIFICATION TO INTERNATIONAL PATENT CLASSIFICATION

A revised and updated edition of the "Concordance: United States Patent Classification to International Patent Classification" has been published and is available from the Superintendent of Documents, U.S. Government Printing Office, for $1.50. This second edition is a revision of the edition of April 1969, and contains about 3,000 changes, corrections and additions suggested by users of the book. It includes all new U.S. classes published up to and including November 1971.

Apr. 12, 1972.

W. W. BURNS, JR.,
Administrator, Office of Search Systems and Documentation.

[898 O.G. 368]

---

(180) MACHINE SEARCH SERVICE

The mechanized retrieval system formerly used by the Patent Office in making examiner searches in the field of steroids has been replaced by the ICIREPAT Shared System for this field (System ST). This new system is based upon the original U.S. Patent Office system, with certain additions and modifications. Following are the changes that have been or are being effected:

1. Two sub-systems have been created, one for steroid structures and the other for processes which produce steroid structures.
2. Patents relating to seco, nor, homo- and hetero steroids are within the scope of the new ICIREPAT system and are being added to the system.
3. The new system does not at this time include U.S. patents issued prior to 1965. It is anticipated that U.S. patents from 1961–1964 will be added. To date, no plans have been made for the indexing of non-patent literature.
4. Foreign patents relating to structures and processes within the scope of the sub-systems are being indexed by cooperating foreign patent offices.
5. The ICIREPAT structure sub-system includes substantially the same capabilities for searching compounds as the old system; the card format, however, has been modified.
6. Both the manual and the code sheet have been revised to reflect these additions and modifications as well as a number of other minor changes. The manual is still under revision; however, draft copies are available to users of the system.

The ICIREPAT System ST is offered for public use under the conditions and procedures prescribed herein.

This system is available as a punched card file for an initial fee of $40.00. The instruction manual is still under revision; however, as noted above, draft copies are provided with the card file. A renewal fee of $35.00 per year entitles the subscriber to receive cards for newly issuing patents as well as for older documents (i.e., those indicated in items 2, 3 and 4 above) as these cards become available.

This file which presently exists for mechanized searching consists of:

Field	Class	Subclass	File content [1]
Steroid	260	239.5+	1,937 U.S. Patents.
		397+	1,111 Foreign Patents.

[1] Approximate number of documents in the files as of October 1, 1972.

A substantial portion of the instruction manual is devoted to the technique of preparing the code sheet which is the means provided for expressing the search query for machine handling. Effective use of the mechanized search system and the achievement of competent results are dependent upon understanding and care in applying the coding information offered in this publication.

The Patent Office will accept requests for machine searches submitted on code sheets prepared in accordance with instructions contained in the aforedescribed manual. Requests received in any other form will not be accepted, as the Patent Office will not assume the responsibility for the formulation of a search query or the representation of a query in coded form. The Patent Office will, however, provide assistance to persons seeking aid in resolving specific questions which may arise in completing the code sheet prior to submitting the search request. The code sheet serves as the query form for searches on this system.

One or more Examiners have been designated to provide such assistance. A request for a conference on mechanized search questions in the field of steroids may be directed to the Supervisory Primary Examiner of Group Art Unit 124.

A search constitutes all of the machine and related operations required to retrieve from a data file, information contained therein which fulfills the search instructions represented on a code sheet. When several code sheets are required to cover the full search need, each code sheet will constitute a search. A search will be considered to be complete and proper even under circumstances in which proper operation of the system produces output representing documents which, while fulfilling the coded requirements, are determined by the user to lack pertinence or relevance in any or a sufficient degree; or, conversely, fails to produce an output.

The cost per search, which includes a list of the document references retrieved, is $5.00. Copies of all U.S. and foreign patent references will be supplied, if requested as part of the search service, for additional cost at established rates, chargeable to a deposit account maintained by the search purchaser with the Patent Office.

Code sheets for the machine search file may be obtained from the Patent Office. Address requests to the Patent Office, Office of Patent Classification, Washington, D.C. 20231.

Requests for searches in the original Steroid system will still be accepted, since the revised ICIREPAT system at present includes among the U.S. patents only those which issued

after January 1, 1965. The content of this original file, updating for which terminated with the issues of January 1972, is as follows:

5940 U.S. patents
111 Foreign patents
4179 Non-patent literature items

The instruction manual is entitled "Revised Steroid Search System Coding Manual," R & D Report No. 19. Copies of this manual and code sheets may also be obtained from the Office of Patent Classification, and searches may be submitted according to the same procedures and guidelines set forth above for the new ICIREPAT Steroid system.

EDWIN R. MACKERT,
Acting Administrator,
Office of Patent Classification.

[905 O.G. 70]

POSTAL SERVICE EMERGENCY

(181) EMERGENCY SITUATION IN THE U.S. POSTAL SERVICE

In view of the present emergency situation in U.S. postal service, the U.S. Patent Office is taking the following actions.

In regard to pending applications, the time for taking any action or paying any fee expiring during the period beginning March 16 and ending April 15, 1970, both dates inclusive, is hereby extended for ONE MONTH. However, no extension shall exceed a maximum period for response provided for in the Statutes.

U.S. Department of Commerce Field Offices have been designated, on an emergency basis, as receiving stations for the U.S. Patent Office. All papers should be enclosed in a sealed envelope and deposited in a Field Office. Such papers will be considered as received in the U.S. Patent Office on the day of deposit. The Field Office will date stamp each envelope so deposited, and applicants or their representatives should assure the legibility of the date stamp. Field Offices will place a corresponding date stamp on receipt cards provided by the depositor, which must completely identify the papers deposited.

Field Office deposits should, if possible, be limited to such papers wherein the Patent Statutes do not provide a remedy for failure to obtain a particular date. Examples of these types of papers are: checks in payment of issue fees, new application papers wherein priority dates or statutory bars may be involved, amendments where the six month statutory period for response is about to expire, etc.

The Field Office in New York designated to receive papers for the U.S. Patent Office is located at:

41st Floor, Federal Office Bldg.
26 Federal Plaza, Foley Square
New York, N.Y.

The designated Field Office in Hartford, Connnecticut is located at:

Room 610–B, Federal Office Bldg.
450 Main St.
Hartford, Conn.

The addresses of Field Offices in other cities are listed in local directories and are available upon inquiry to the Commissioner of Patents.

RICHARD A. WAHL,
Mar. 19, 1970. *Acting Commissioner of Patents.*

[872 O.G. 1383]

(182) PATENT OFFICE—POSTAL SERVICE

In view of the return to normal operations of the United States postal service, the Notice of Mar. 19, 1970 (published in the OFFICIAL GAZETTE of Mar. 24, 1970, vol. 872, No. 4) is hereby revised.

After Apr. 15, 1970, the U.S. Department of Commerce Field Offices will no longer be designated as receiving stations for the U.S. Patent Office. Accordingly, after the abovenoted date, all letters or other papers relating to patent and trademark cases will be considered as received in the U.S. Patent Office only if they are filed in accordance with Rule 6 of the Rules of Practice in Patent Cases as amended Nov. 26, 1969.

All other provisions of the Notice of Mar. 19, 1970 and the Notice of Mar. 26, 1970, relating to Trademarks, remain in effect.

WILLIAM E. SCHUYLER, JR.
Mar. 27, 1970. *Commissioner of Patents.*

[873 O.G. 319]

(183) FILE HISTORY OF APPLICATIONS AFFECTED BY POSTAL EMERGENCY

As a result of the postal emergency, the time for taking any action or paying any fee in the U.S. Patent Office expiring between the dates of March 16, 1970 and April 15, 1970, both dates inclusive, was automatically extended for one month, provided it did not exceed a maximum period for response provided in the Statutes. (See O.G. of March 24, 1970 or March 31, 1970, 872 O.G. 1383 and April 7, 1970, 873 O.G. TM 2.)

Since this extension of time was automatic there will be nothing in the individual files to indicate that a paper filed during that period was, in fact, timely though it was received later than its apparent due date.

In order to provide a complete history in the affected files and to dispel any question as to abandonment in the record of a patented file, applicants or their attorneys are requested to file a paper explaining these circumstances. A separate paper should be filed in each case so affected (identified by Serial No., filing date, title and applicant's name) and may be merely a copy of the notice which authorized the one-month extension or should specifically refer to and identify that notice.

RICHARD A. WAHL,
Apr. 27, 1970. *Assistant Commissioner of Patents.*

[874 O.G. 688]

(184) U.S. DEPARTMENT OF COMMERCE FIELD OFFICES TO SERVE AS RECEIVING STATIONS ONLY IN DECLARED EMERGENCIES

During the recent postal emergency, Field Offices of the U.S. Department of Commerce were designated as receiving stations for the U.S. Patent Office (according to the Notices of March 19, 1970, 872 O.G. 1383 and March 26, 1970, 873 O.G. TM 2). In view of the subsequent resumption of normal postal operations, that emergency arrangement was discontinued in accordance with the notice of March 27, 1970, 873 O.G. 319. After April 15, 1970, the normal practice with respect to the filing of all letters and other papers relating to patent and trademark matters in the U.S. Patent Office was resumed.

The Patent Office has received suggestions proposing that the Field Offices continue to serve as receiving stations for the U.S. Patent Office. These suggestions have received careful and sympathetic consideration. However, it has been concluded that any activities of the Field Offices in this connection must be restricted, in the future, to any emergency officially announced by the Patent Office as requiring such action.

RICHARD A. WAHL,
Apr. 27, 1970. *Acting Commissioner of Patents.*

[874 O.G. 688]

(185) PATENTS AND TRADEMARKS

Relief in Cases Affected by the Postal Emergency of March 1970

On June 30, 1971, President Nixon signed into law Public Law 92–34.

Public Law 92–34 requires claims for the benefit of an earlier filing date (Section 1.) and requests for such other relief as may be appropriate (Sec. 2.) to be filed in the Patent Office within 6 months after enactment, that is by December 30, 1971. Failure to file a statement within the noted period will result in loss of right to take advantage of the benefits of the law. Further explanation or evidence may be required at a subsequent time. Public Law 92–34 provides relief only for situations caused by the postal emergency which began

on March 18, 1970, and ended on or about March 30, 1970, and for which there is no remedy under existing law.

The following explanation is designed to serve as a guide for persons desiring relief under the law.

The verified statement required to be filed under sections 1 and 2 of the law may be by any of the following:

(a) Applicant(s) for patent or trademark registration;
(b) Patentee(s) or trademark registrant;
(c) Owner(s) of record.

In cases involving plural inventors, statements made under (a) or (b) must be signed by all inventors.

The verified statement must specify the particular earlier date of receipt in the Patent Office to which the applicant, patentee or trademark registrant, or owner of record believes his application, fee or other paper would be entitled except for the delay caused by the postal emergency of March, 1970. The statement must be verified, that is, in the form of an oath or declaration. (37 CFR 1.68 (Patent Rule 68) and 2.20 (Trademark Rule 2.20).)

Evidence will not normally be required or considered by the Patent Office regarding a claimed filing date of March 18, 1970, or later, in applications actually filed before June 1, 1970. Claims for earlier filing dates in cases actually filed after June 1, 1970, or claiming a date prior to March 18, 1970, will be considered prima facie unreasonable unless an acceptable explanation of the basis for the claim is filed in the Patent Office with the claim or within 1 month or such longer time as may be prescribed by the Commissioner. Any claim not accepted by the Patent Office because it is obviously defective on its face or unreasonable may be subjected to further review by petition to the Commissioner.

The statement should adequately identify the involved application, patent, or trademark registration by including the name of the applicant, patentee or registrant, title of the invention or an identification of the mark, serial number, filing date, group art unit number and any other identifying data such as status of the case (e.g., awaiting first action, amendment, brief, etc.). Acceptable statements will be acknowledged, made of record and retained in the Patent Office files.

When practical, earlier filing dates accorded under this law, as well as the originally granted filing dates, will be identified on ensuing patents and trademark registrations. These dates will also be included in the OFFICIAL GAZETTE in connection with patents, trademark registrations and trademarks published for opposition. In other cases, such as applications in issue prior to filing of a claim, the patent or trademark registration number and claimed filing dates will be published in the OFFICIAL GAZETTE after December 30, 1971.

Patents issued with earlier filing dates afforded by this law will not be effective as prior art as of such earlier filing dates under subsection 102(e) of title 35 of the United States Code.

In a pending patent application in which a claim for an earlier filing date has been acknowledged under this law, applicants need not file a Rule 131 affidavit to overcome a reference having an effective filing date between the "earlier" and the actual filing date of the application. Intervening references of this type will be cited but not applied by the examiner. Although a statement claiming an earlier date is accepted by the Patent Office, the claimed earlier date may be called into question in subsequent inter partes proceeding in the Patent Office or in the courts. In these proceedings, the applicant or owner may be required to present further evidence establishing the filing date to which the application is entitled. In such cases a definite determination shall be made as to whether the applicant is entitled to the earlier date under the law.

In cases where a patent application or an application for registration or late renewal of a trademark is determined to have become abandoned for failure to meet a statutory time limit because of the postal emergency, the application will automatically be restored to pending status by the acceptance of the request, and prosecution or other processing of the application will be resumed. Similarly, if a trademark registration is determined to have been cancelled for failure to meet the statuory time limit within which to file the affidavit required under section 8 of the Trademark Act (15 U.S.C. 1058a) because of the said emergency, the order for cancellation will be rescinded.

As explained in the notice of January 26, 1971 (882 O.G. 1342), applicants who may be entitled to earlier filing dates should note that a change in their U.S. filing date might, in turn, alter the date of expiration of the 6- and 12-month periods for filing applications abroad under provisions of the Paris Convention for the Protection of Industrial Property.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Dated: July 14, 1971.

JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

[FR Doc. 71-10469; Filed 7-22-71; 8:52 a.m.]

36 F.R. 13694; July 23, 1971

[889 O.G. 1064]

MISCELLANEOUS

(186) JOINT UNITED STATES-REPUBLIC OF THE PHILIPPINES PROGRAM

I am pleased to announce the availability of an exchange program on examination results between the United States and the Republic of the Philippines. The program involves patent applications filed in the United States which are subsequently followed by corresponding applications filed in the Republic of the Philippines and patent applications filed in the Philippines subsequently followed by corresponding applications filed in the United States.

The program would operate as follows:

The applicant would file his application in the U.S. Patent Office which would process the application in the normal manner and examine the application in the usual time sequence.

If the applicant should later file a corresponding application in the Philippines Patent Office, he may elect to use the special filing procedure. Under this special filing procedure, applicant files his application in the Philippines accompanied by a notice of election to participate in the special procedure; which notice of election contains a certification that the description (excluding references to related applications), claims and drawings are identical to those of the corresponding application originally filed in the United States. The earlier filed application must be fully identified; and, in applications without a claim of priority, a certified copy of the earlier filed U.S. application must be submitted to the Philippines Patent Office. In addition, applicant must also agree that all amendments to his U.S. application will also be made with respect to his application filed in the Philippines.

In the U.S. Patent Office, applicant will regularly file two copies of each amendment, one copy must be marked "Copy for Philippines Patent Office." Upon termination of prosecution the U.S. Patent Office shall remove all copies so marked from the U.S. file and promptly forward the same to the Philippines Patent Office.

Election forms for participation in this special program must be signed in duplicate and simultaneously accompany the application to be filed in the Philippines.

Upon receipt of properly filed notice of election, the Philippines Patent Office would notify the U.S. Patent Office of the election by forwarding one copy of the election forms to the U.S. Patent Office. The Philippines Office would defer action on the Philippines application pending receipt of information as to the disposition of the application by the U.S. Patent Office. If no such information is received by the Philippines Office within a reasonable amount of time from the date of filing in the Philippines, the Philippines Office may, either on its own initiative, or applicant's request, inquire as to the status of the U.S. application and, if desired, proceed with its own independent examination.

Upon disposal of the application by the U.S. Patent Office, appropriate information will be sent to the Philippines Patent Office which will include all necessary identifying data, whether allowed or abandoned, notice of allowance, copies of documents cited during examination, a copy of the last office action and, when necessary, any earlier actions which may be included by reference in the last action. The Philippines Office would then make their own complete office action based upon the claims as amended with the U.S. Patent Office, performing whatever checks desired and search for copending interfering applications. Alternatively, the Philippines may request applicant to show cause why the results of the U.S. examination should not be accepted in the Philippines. All avenues of appeal would remain open to the applicant.

Where copending applications are cited and applied during examination in the U.S. Patent Office, full examination would not be forwarded to the Philippines Patent Office, and the fact that a U.S. copending application was cited would be noted as a matter of information, since such references would be inapplicable in the Philippines.

Where the application originates in the Philippines Patent Office and is subsequently filed in the U.S. Patent Office, a similar procedure as outlined above consonant with U.S. Law will be followed.

It is believed that this program will facilitate the handling of U.S. origin applications filed in the Republic of the Philippines resulting in a savings in time and expense of prosecution to U.S. applicants.

Election forms for participation in this special program are now available from The Foreign Exchange Section, Office of Patent Services.

GERALD D. O'BRIEN,
Assistant Commissioner.

[847 O.G. 331 (Feb. 13, 1968)]

---

(187) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER 1—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 1—RULES OF PRACTICE IN PATENT CASES

PART 3 FORMS FOR PATENT CASES

Amendment of Rules re New Defensive Publication Program; Additional Form

Section 1.11, 1.14, 1.101, 1.103 and 1.108 of Title 37 CFR (Patent Rules 11, 14, 101, 103 and 108) are amended or revised and a new § 1.139 (Patent Rule 139) is added to take effect May 1, 1968, for the purpose of instituting a new defensive publication program. A new section 3.50 is added for the purpose of implementing the new program.

The general substance of the proposed revisions and additions was published in the Federal Register of February 20, 1968 (38 F.R. 3189). A hearing was held on March 27, 1968, and all persons, who desired to, were invited to attend and to submit their views, objections, recommendations or suggestions. Both oral and written comments were carefully considered. The sections are being revised substantially as published with a few additional changes.

This program is intended to provide better service to the public by making available the technical disclosure of certain applications in which the owner may prefer to publish an abstract in lieu of obtaining an examination by the Patent Office. The defensive publication would be in the form of an abstract of the technical disclosure, printed in the OFFICIAL GAZETTE and made a part of the Patent Office search files.

This program will be open to any applicant having an application awaiting action by the Patent Office and who files a written request no later than eight (8) months after the earliest U.S. effective filing date of the designated application and agrees to the conditions of the program, including waiving his patent rights based on the designated application, opening the complete application to inspection by the general public upon publication of the abstract, expressly abandoning his application, the abandonment to take effect five (5) years after the earliest U.S. effective filing date of the application unless within that period interference proceedings have been initiated, and waiving his rights to a patent on a continuing application filed after the expiration of thirty (30) months from the earliest U.S. effective filing date of the designated application. *Until November 1, 1968, this program will be open to any pending application awaiting first action by the Patent Office at the time of the request without regard to the filing date of that application.*

In accordance with existing rules and procedures interferences may be declared with applications and patents. During the period beginning with the suggestion of claims by the Patent Office or the filing of claims by the applicant copied from a patent and ending with the termination of proceedings if an interference is declared or the mailing of a decision refusing to declare the interference, abandonment by reason of the expiration of the five year period will be stayed. Since the applicant has waived his patent rights and agreed to a defensive publication, termination of interference proceedings in his favor would render the express abandonment ineffective but would not result in the issuance of an enforceable patent. Instead, a normal Notice of Allowance would be issued except that the applicant would be notified that when the issue fee is remitted a disclaimer of the entire term of the patent to be granted in accordance with the second paragraph of 35 U.S.C. 253 should be included.

No special fees will be required for entrance into this program. The applicant will be permitted to include with his request a replacement or expanded abstract of the technical disclosure of up to two hundred (200) words. Acceptance of a request to enter this program will be contingent upon screening by the Patent Office to exclude such material that may be considered advertising, frivolous, scandalous, against public policy, subject to national security controls, etc. Acceptance of a designated application in this program is not intended to preclude the examination of any continuing application filed under 35 U.S.C. 120 within thirty (30) months after the earliest effective U.S. filing date of the designated application.

Upon receipt and approval of the request the application abstract will be published in the OFFICIAL GAZETTE. Publication of the abstract in the OFFICIAL GAZETTE would be in a separate section identifying the application as being open for inspection by the general public and indicating that it is subject to the New Defensive Publication Program.

Following publication the application would be filed in the Record Section of the Patent Reference Branch where it will be available for inspection upon written request. Copies of the application will be furnished by the Patent Office upon request and payment of fee. The application abstract and suitable drawing copies would then be made a part of the official search files.

After the defensive publication has appeared in the OFFICIAL GAZETTE the abstract and suitable drawing copies will be available as prior art from the date of publication under 35 U.S.C. 102(a) or 102(b) as a printed publication. Also, at this time the application will be available as prior art under 35 U.S.C. 102(a) as evidence of prior knowledge from the actual date of filing the application in the Patent Office.

* * * * *

EDWARD J. BRENNER,
Commissioner of Patents.

Approved: Apr. 9, 1968.
JOHN F. KINCAID,
Assistant Secretary for Science and Technology.

Published in 33 F.R. 5623; Apr. 11, 1968

[849 O.G. 1221]

---

(188) STUDY OF COMPUTER PROGRAM PROTECTION

Request for Comments

The President's Commission on the Patent System, established by Executive Order No. 11215 on April 8, 1965, submitted its final report to the President on November 17, 1966. Included among the recommendations of the Commission is the following regarding computer programs:

> A series of instructions which control or condition the operation of a data processing machine, generally referred to as "program," shall not be considered patentable regardless of whether the program is claimed as: (*a*) an article, (*b*) a process described in terms of the operations performed by a machine pursuant to a program, or (*c*) one or more machine configurations established by a program.

The Patent Reform Act of 1967, S. 1042 and H.R. 5924, included the Commission's recommendation and excluded computer programs from patentable subject matter. After a review of the comments submitted, the Department of Commerce withdrew its support of this provision of the Patent Reform Act for further study and evaluation of the subject.

Because of the significance of the computer programing industry to the economy and the interest evidenced by the public and private sectors in commenting on this provision of the Patent Reform Act, the Patent Office has initiated a comprehensive study of the need for the protection of computer programs. The study is intended to encompass all aspects of the question, including that as to whether there is,

or is not, a need for some kind of protection for programs. The study will investigate which of various types of protection would best satisfy any need for protection, including systems based either on originality or novelty. Problems relating to the question of the protection of computer programs will be considered; for example, the nature of the disclosure and other requirements relating to applications for protection, the merits of examination and registration systems, the duration of protection, and the administration and enforcement of the various plans of protection.

The views of interested persons are solicited on the various aspects of the Patent Office study, the recommendation of the President's Commission and any related matters. These views should be submitted in writing to the Commissioner of Patents, Washington, D.C. 20231 by December 15, 1968.

EDWARD J. BRENNER,
Sept. 16, 1968. *Commissioner of Patents.*

Approved:
JOHN F. KINCAID,
Assistant Secretary for Science and Technology.

[855 O.G. 555]

(189) DEFENSIVE PUBLICATION PROGRAM

The open season of the New Defensive Publication Program, originally announced in the OFFICIAL GAZETTE of May 7, 1968 (850 O.G. 1) as terminating November 1, 1968, is hereby extended. Accordingly, until January 1, 1969, this program will be open for any pending application awaiting first action by the Patent Office at the time of the request without regard to the filing date of that application.

As originally announced this program will continue to be open until further notice to any applicant having an application awaiting action by the Patent Office and who files a written request no later than eight (8) months after the earliest U.S. effective filing date of the designated application.

RICHARD A. WAHL,
Oct. 1, 1968. *Assistant Commissioner.*

[855 O.G. 1109]

(190) PATENT PRINTING PRIORITY

In view of the backlog of allowed cases waiting to be printed, the applications placed in the weekly formulation of an issue set aside for printing will be selected according to the following priorities:

1. Allowed cases which were made special by the Commissioner (including those under the New Special Examining Procedure).
2. Allowed cases that are more than five years old.
3. Allowed reissue applications.
4. Allowed applications having an effective filing date earlier than that required for declaring an interference with a copending application claiming the same subject matter.
5. Allowed application of a party involved in a terminated interference.
6. Allowed applications in which the applicant has filed a request in the nature of a petition setting forth his reasons for advancing the printing date.
7. Allowed applications ready for printing and not covered by any of the six preceding categories. The selection of cases in the involved category will be by chronological sequence based on the date the issue fee was paid.

To ensure that any application falling within the scope of the categories outlined above and identified by numbers 1 to 5 receives special treatment the Examiners should staple on the file wrapper a tag entitled "Special in Issue and Gazette Branch." The special tag, PO–364, may be obtained from the Group Clerk. The Examiner shall print directly on the tag the recitation "In Issue and Gazette Branch" and the appropriate printing category outlined above. The application is then forwarded to Issue and Gazette Branch in accordance with existing procedures.

The personnel in Issue and Gazette Branch will then set the tagged cases aside and make a notation on all copies of the Notice of Allowance to be mailed that further processing of this application will be "special."

In cases falling in category No. 6, the request must be filed after the Notice of Allowance has been received and no later than the date the issue fee is paid. The request must be directed to the Head of the Issue and Gazette Branch.

RICHARD A. WAHL,
Nov. 29, 1968. *Assistant Commissioner.*

[857 O.G. 1327]

(191) DEFENSIVE PUBLICATION PROGRAM

The notice of October 1, 1968 (855 O.G. 1109) which extended the open season of the New Defensive Publication Program until January 1, 1969, is herby modified to further extend the open season indefinitely. Accordingly, until further notice any patent application which has not been given a first action may be entered in the Defensive Publication Program.

RICHARD A. WAHL,
Dec. 20, 1968 *Assistant Commissioner.*

[858 O.G. 687]

(192) SUPPLEMENTAL NOTICE REGARDING THE PATENT OFFICE STUDY OF COMPUTER PROGRAM PROTECTION

Extension of Time for Submitting Comments

The deadline set in the Federal Register notice of October 19, 1968 (33 F.R. 15562) for submitting comments in connection with the Patent Office Study on Computer Program Protection is extended from December 15, 1968, to March 15, 1969.

EDWARD J. BRENNER,
Commissioner of Patents.

Approved:
JOHN F. KINCAID,
Assistant Secretary for Science and Technology.

Published in 34 F.R. 1332; Jan. 28, 1969

[859 O.G. 345 (Jan. 28, 1969)]

(193) JOINT U.S.-SWEDISH SEARCH EXCHANGE

A program for the exchange of search results between the patent offices of Sweden and the United States was initiated in February 1969. The program which is now in full operation involves patent applications filed in one country which are subsequently followed by corresponding applications filed in the other.

The program operates as follows:

The applicant files an application in the U.S. Patent Office which then processes the application in the customary manner and in the usual time sequence.

If the applicant later files an application in Sweden claiming the priority of the U.S. application, the Patent Office of Sweden notifies the U.S. Patent Office of this filing by forwarding a request for a list of the references cited by the U.S. examiner in the first office action on the merits.

Where the application originates in Sweden and is subsequently filed in the U.S. Patent Office, a similar procedure is followed whereby the U.S. office requests and the Swedish office supplies a list of references cited by the Swedish examiner.

This program, which involves only the furnishing of listings of references cited, could improve the quality of the patents granted by each office.

WILLIAM E. SCHUYLER, JR.,
Aug. 26, 1969. *Commissioner of Patents.*

[866 O.G. 1031]

(194) DEFENSIVE PUBLICATION PROGRAM

1. To resolve certain inherent publication and reference problems, and to establish and treat Defensive Publication. Applications (notices published in 33 F.R. 5623, April 11,

1968, and O.G. 1221, April 30, 1968) in the same manner as patents, the following changes are being made:

a. Publication is to be weekly beginning with 869 O.G. No. 3, December 16, 1969, and

b. Distinct numbers are to be assigned per example:

T 869 001
- 001 — Number series, 001–999 available monthly,
- 869 — O.G. volume number,
- T — Document category, T for Technical disclosure.

2. Defensive Publications will continue to be included in sub-class lists and subscription orders. The new number will be used for all official reference and document copy requirements.

RICHARD A. WAHL,
Nov. 21, 1969. *Assistant Commissioner.*

[869 O.G. 687]

---

(195) CHANGE IN LEGAL HOLIDAYS

Those doing business before the Patent Office are hereby reminded that by Public Law 90—363, 82 Stat. 250, effective January 1, 1971, Section 6103(a) of Title 5, United States Code, was amended to read as follows:

§ 6103. *Holidays*

(a) The following are legal public holidays:
New Year's Day, January 1.
Washington's Birthday, the third Monday in February.
Memorial Day, the last Monday in May.
Independence Day, July 4.
Labor Day, the first Monday in September.
Columbus Day, the second Monday in October.
Veterans Day, the fourth Monday in October.
Thanksgiving Day, the fourth Thursday in November.
Christmas Day, December 25.

Each of the holidays enumerated will constitute "a holiday within the District of Columbia," as referred to in Section 21, Title 35, United States Code.

WILLIAM E. SCHUYLER, JR.,
Dec. 2, 1970. *Commissioner of Patents.*

[881 O.G. 1707]

---

(196) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

SUBCHAPTER A—GENERAL

SUBCHAPTER B—GOVERNMENT INVENTIONS JURISDICTION

EDITORIAL NOTE: Chapter I of Title 37 of the Code of Federal Regulations is changed by designating the existing text as Subchapter A—General, and inserting a new Subchapter B—Government Inventions Jurisdiction, containing former Parts 300, 301, and 302 which are transferred from Chapter III of this title and redesignated as follows:

Part
100 Administration of a uniform patent policy with respect to the domestic rights in inventions made by Government employees.
101 Acquisition and protection of foreign rights in inventions.
102 Licensing of foreign patents acquired by the Government.

Accordingly, all references to sections in former Parts 300, 301, or 302 shall be deemed to be to sections in Parts 100, 101, and 102. Thus, a reference to former § 300.1 shall be considered a reference to § 100.1.

CHAPTER III—GOVERNMENT INVENTIONS JURISDICTION, PATENT OFFICE, DEPARTMENT OF COMMERCE

TRANSFER OF REGULATIONS

The text of Chapter III of Title 37 of the Code of Federal Regulations is transferred to Chapter I of this title as Subchapter B—Government Inventions Jurisdiction. Former Parts 300, 301, and 302 are redesignated Parts 100, 101, and 102 respectively.

Published in 34 F.R. 20383, Dec. 31, 1969

[870 O.G. 1039]

---

(197) DELAY IN ISSUANCE OF PATENTS

On June 9 and June 16, 1970, only reissue patents, design patents, and trademark registrations will be issued due to circumstances involving the printing of patent specifications.

Delays may occur in filling orders for newly issued patents.

WILLIAM E. SCHUYLER, JR.,
May 21, 1970. *Commissioner of Patents.*

[875 O.G. 327]

---

(198) PATENT FRONT PAGE FORMAT

August 4, 1970 marks the inauguration of certain changes and innovations in the form and method of producing printed copies of patents. Nearly 100 patents in this issue were electrophotographically composed for printing as part of a comprehensive system for developing and utilizing a patent full-text library in computer processable form. Numbers of patents produced in this manner are scheduled to increase until *all* patents enter the machineable data base.

Patents produced by this new system are distinguishable in appearance from all others in the following respects:

(a) Front page

The first sheet of each patent presents an arrangement of the applicable bibliographic type of data elements which are itemized and discussed elsewhere; an abstract of the disclosure (or a claim when no abstract is available); and, a reduced reproduction of a representative drawing figure when the patent contains any drawings.

(b) Other changes

With identification of the patent appearing on the front page, the title of the invention and the name of the inventor will no longer be printed in the heading of drawings. The patent number, date of issuance, and sheet-of-sheets information will continue to be printed on the drawings.

All of the bibliographic type of data and the abstract which previously appeared on sheets containing text matter are removed from such pages and consolidated on the front page.

Data elements presented on the front page are accompanied by a number which appears in brackets.

The numbers are data element identifiers which have been adopted internationally for use on patents and published applications to facilitate the worldwide use of such documents as set forth below:

[11] Patent number
[21] Application number
[22] Filing date
[31] Application number (of a Convention priority application)
[32] Filing date (of Convention priority application)
[33] Country in which the Convention priority application was filed
[45] Date of Patent issue: followed by terminal disclaimer, if any
[51] International Patent Classification: basic classification in bold face type; other in light face
[52] U.S. Classification: Original class and subclass in bold face type; cross-references in light face
[54] Title of the invention: Followed by the number of claims and drawing figures
[56] References cited: List of prior art documents cited by the examiner, arranged in the following categories:
United States Patents
Foreign Patents or Applications
Other Publications
[60] Related U.S. Applications:
[62] Due to Division(s)
[63] Due to Continuation(s)
[64] Due to reissue(s)
[72] Name(s) of the Inventor(s)
[73] Assignee(s)

[•] Field of Search: Subclasses recorded on the file wrapper as searched by the examiner

[•] Primary Examiner: The person responsible for review of the patent allowance or who, in addition, examined and allowed the patent application

[•] Assistant Examiner: the person who examined and allowed the patent application, other than a primary examiner

[•] Attorney: the principal attorney of record at the time the allowed application was prepared for patent printing

[•] Abstract

Element numbers have not been assigned to the items denoted by the sign [•]

For earlier information respecting the front page format and date entries, reference is made to the notice published in the OFFICIAL GAZETTE of March 11, 1969 (860 O.G. 336–7).

WILLIAM E. SCHUYLER, JR.,
July 16, 1970. *Commissioner of Patents.*

[877 O.G. 1]

---

(199) DISCLOSURE DOCUMENT PROGRAM

This notice consolidates and supersedes the notices of Mar. 26, 1969 (862 O.G. 1) and Aug. 11, 1970 (878 O.G. 1) relating to the Patent Office Disclosure Document Program.

Under this program the Patent Office accepts and preserves, for a period of two years, papers referred to as "Disclosure Documents." These papers may be used as evidence of the dates of conception of inventions.

THE PROGRAM

A paper disclosing an invention and signed by the inventor or inventors may be forwarded to the Patent Office by the inventor (or by any one of the inventors when there are joint inventors), by the owner of the invention, or by the attorney or agent of the inventor(s) or owner. It will be retained for two years and then be destroyed unless it is referred to in a separate letter in a related patent application within said two years.

A Disclosure Document is not a patent application and the date of its receipt in the Patent Office will not become the effective filing date of any patent application subsequently filed. However, like patent applications, these documents will be kept in confidence by the Patent Office. If patent protection is desired, a patent application should be filed as soon as possible.

This program does not diminish the value of conventional witnessed and notarized records as evidence of conception of an invention, but it should provide a more credible form of evidence than that provided by the popular practice of mailing a disclosure to oneself or another person by registered mail. The program is made available as a service to those persons desiring to use it.

CONTENT OF DISCLOSURE DOCUMENT

Although there are no restrictions as to content and claims are not necessary, the benefits afforded by a Disclosure Document will depend directly upon the adequacy of the disclosure. Therefore, it is strongly urged that the document contain a clear and complete explanation of the manner and process of making and using the invention in sufficient detail to enable a person having ordinary knowledge in the field of the invention to make and use the invention. When the nature of the invention permits, a drawing or sketch should be included. The use or utility of the invention should be described, especially in chemical inventions.

The Disclosure Document must be limited to written matter or drawings on paper or other thin, flexible material, such as linen or plastic drafting material, having dimensions or being folded to dimensions not to exceed 8½ by 13 inches. Photographs also are acceptable. Each page should be numbered. Text and drawings should be sufficiently dark to permit reproduction with commonly used office copying machines.

A $10 fee is charged for filing a Disclosure Document. Payment must accompany the Disclosure Document when it is submitted to the Patent Office.

In addition to the $10 fee, the Disclosure Document must be accompanied by a stamped, self-addressed envelope and a separate paper in duplicate, signed by the inventor, stating that he is the inventor and requesting that the material be received for processing under the Disclosure Document Program. The papers will be stamped by the Patent Office with an identifying number and date of receipt, and the duplicate request will be returned in the self-addressed envelope together with a warning notice indicating that the Disclosure Document may be relied upon only as evidence and that a patent application should be diligently filed if patent protection is desired. The inventor's request may take the following form:

"The undersigned, being the inventor of the disclosed invention, requests that the enclosed papers be accepted under the Disclosure Document Program, and that they be preserved for a period of two years."

RETENTION

The Disclosure Document will be preserved in the Patent Office for two years after its receipt and will then be destroyed unless it is referred to in a separate letter in a related patent application filed within the two-year period. The Disclosure Document must be referred to in the separate letter by title, number, and date of receipt. Acknowledgment of receipt of such letters will be made in the next official communication or in separate letter from the Patent Office. Unless it is desired to have the Patent Office retain the Disclosure Document beyond the two-year period, it is not required that it be referred to in a patent application.

WARNING AS TO LIMITATIONS

The two-year retention period should not be considered to be a "grace period" during which the inventor can wait to file his patent application without possible loss of benefits. It should be recognized that in establishing priority of invention an affidavit or testimony referring to a Disclosure Document must usually also establish diligence in completing the invention or in filing the patent application since the filing of the Disclosure Document.

Inventors are also reminded that any public use or sale in the United States, or publication of the invention anywhere in the world, more than one year prior to the filing of a patent application on that invention will prohibit the granting of a patent on that invention.

If the inventor is not familiar with what is considered to be "diligence in completing the invention" or "reduction to practice" under the patent law, or if he has other questions about patent matters, the Patent Office advises him to consult an attorney or agent registered to practice before the Patent Office. Patent attorneys and agents may be found in the telephone directories of most major cities. Also, many large cities have associations of patent attorneys which may be consulted.

RICHARD A. WAHL,
Jan. 4, 1971. *Assistant Commissioner of Patents.*

[883 O.G. 3]

---

(200) OFFICE OF THE SECRETARY

[Dept. Organization Order 30–3B]

PATENT OFFICE

Organization and Functions

This material supersedes the material appearing at 35 F.R. 18553 of December 5, 1970.

SECTION 1. *Purpose.* This order prescribes the organization and assignment of functions within the Patent Office.

SEC. 2. *Organization Structure.* The principal organization structure and line of authority of the Patent Office shall be as depicted in the attached organization chart. (A copy of the Organization Chart is on file with the original of this document with the Office of the Federal Register.)

SEC. 3. *Office of the Commissioner.* The Commissioner determines the policies and directs the programs of the Patent Office and is responsible for the conduct of all activities of the Patent Office. He is principally assisted by five Assistant Commissioners who shall have the main duties as specified below:

a. The Deputy Commissioner (First Assistant Commissioner under 35 U.S.C. 3) shall assist the Commissioner in the direction of the Patent Office and shall perform the duties and function of the Commissioner in the latter's absence.

b. The Assistant Commissioner for Patent Examining (an assistant commissioner under 35 U.S.C. 3) shall provide administrative and policy direction to the patent examining operations which consist of the organizational elements enumerated

in section 5. This Assistant Commissioner shall be assisted by a Deputy Assistant Commissioner who, among other duties, shall perform the functions of this Assistant Commissioner during the latter's absence.

c. The Assistant Commissioner for Appeals, Legislation, and Trademarks (an assistant commissioner under 35 U.S.C. 3) shall provide administrative and policy directions to the Board of Appeals, the Office of Legislation and International Affairs, the Trademark Trial and Appeal Board, and the Trademark Examining Operation.

d. The Assistant Commissioner for Search Systems Development shall provide technical, administrative, and Policy Direction to the Office of Research and Development and the Office of Search Systems and Documentation. This Assistant Commissioner shall be assisted by a Deputy Assistant Commissioner who, among other duties, shall perform the functions of this Assistant Commissioner during the latter's absence.

e. The Assistant Commissioner for Administration shall provide administrative and policy direction to certain administrative, public and internal support services which consist of the organizational elements enumerated in section 8. This Assistant Commissioner shall be assisted by a Deputy Assistant Commissioner who, among other duties, shall perform the functions of this Assistant Commissioner during the latter's absence.

SEC. 4. *Offices reporting to the Commissioner.* .01 The Director of Planning, Budget, Evaluation, and Forecast shall be the principal assistant and advisor to the Commissioner in Planning and Developing the major Programs of the Patent Office, in formulating and executing budgetary and fiscal policies, appraising the effectiveness of operations in attaining program objectives, and in assessing and forecasting technological activities and invention developments in the United States and other nations. He shall direct the activities of the following offices:

a. The Office of Planning shall develop and recommend major plans and programs for accomplishing the objectives of the Patent Office; direct and coordinate the development and maintenance of internal program planning for support of officewide objectives; and analyze proposed programs for consistency and effective integration with organization responsibility, for pertinence to goals and objectives, for measurability of accomplishment, and validity and usefulness of workload parameters as indicators of expected accomplishment.

b. The Office of Budget shall formulate, interpret, and execute budgetary and fiscal policies; establish and maintain a comprehensive Planning-Programming-Budgeting System collaborating with operating officials in developing budget and fiscal plans; develop and present budget requests; allocate and maintain budgetary control of available funds; and maintain external liaison in budgetary matters.

c. The Office of Evaluation shall review and evaluate the performance of operating units to determine their effectiveness in accomplishing previously established goals and objectives; review and evaluate cost/benefit and cost/effectiveness analyses of alternatives for program accomplishment; and conduct or initiate the submission of such studies as needed for evaluation purposes.

d. The Office of Technology Assessment and Forecast shall continually assess the status of technological activity in all countries, compare inventive activity in the United States relative to other nations, and forecast technological developments on a worldwide basis.

.02 The Office of the Solicitor shall comprise the Solicitor, who is the chief legal officer for the Patent Office, and his professional associates. This Office shall handle all litigation to which the Commissioner is a party and provide other legal services, including drafting of legislation and advice and assistance on legislative matters. Other than in connection with the issuance of patents or the registration of trademarks, the Office shall be subject to the overall authority of the Department's General Counsel, as provided in Department Organization Order 10–6.

.03 The Office of Information Services shall advise and represent the Commissioner on information matters; conduct programs fostering public understanding of the American patent system and the functions, services and administrative publications of the Patent Office; develop publication policies; provide direction and assistance in developing new and revised publications; and assure conformity with policies, regulations, and standards concerning publications and publication practices.

.04 The Office of Data Systems shall be responsible for providing data processing services to other elements of the Patent Office. This shall include the conduct of systems analysis and equipment evaluation studies directly related to the design and development of systems and programs for applications of computer techniques, except systems for printing patents; preparation or procurement and testing of computer programs and supplemental data processing services; operation of all general purpose ADP equipment, except that which may be approved for use within another organization unit as an integral part of its operations; and maintenance of a comprehensive library of programs, including those developed or procured by other organizational units.

.05 The Office of Government Inventions and Patents shall administer Executive Order 10096, as amended by Executive Order 10930 and related regulations, including the rendering of final decisions on the ownership of patents and the rights to inventions made by Government employees, and advise the Commissioner on matters involving the Committee on Government Patent Policy (of the Federal Council for Science and Technology). It shall also conduct research, liaison, and coordinative functions needed to carry out Executive Order 10096 and to advise the Commissioner on Committee matters; provide executive secretariat support to the Committee; and assist in the development and formulation, to the extent appropriate, of a uniform Government-wide patent policy.

SEC. 5. *Offices reporting to the Assistant Commissioner for Patent Examining.* 01 The Board of Patent Interferences shall conduct patent interference proceedings and make final determination in the Patent Office as to priority of invention. The Board shall also decide questions concerning property rights in inventions in the atomic energy and space fields brought before it under the provisions of 42 U.S.C. 2182 and 2457 (d) and (e).

.02 The Office of Examining and Documentation Control shall develop procedures, quality and quantity standards relating to the conduct of the examination and documentation functions; evaluate compliance with examination and documentation standards; and train new examiners in patent practice and procedure.

.03 The Office of Support Services shall provide direct administrative and clerical support to the Examining Groups in the examination of patent applications and attend to the processing of applications both in advance of examination and after allowance by the examiners for patent issuance. Its duties include the review of incoming applications for compliance in matters of form; the origination and maintenance of application inventory documentation and status; preparation, routing, movement, and maintenance of files; liaison with other organization units in obtaining and processing documents; and the provision of other logistical and administrative support.

.04 The Examining Groups, specified below, shall examine applications for patent to ascertain if the applicants are entitled to patents under the law and grant patents to those so entitled. Each examining group shall perform this function for patent applications falling within the generic category indicated by the title of the group. The Examining Groups are:

General Chemistry and Petroleum Chemistry;
General Organic Chemistry;
High Polymer Chemistry, Plastics and Molding;
Coating and Laminating, Bleaching, Dyeing and Photography;
Specialized Chemical Industries and Chemical Engineering;
Industrial Electronics and Related Elements;
Security and Designs;
Information Transmission, Storage and Retrieval;
Electronic Component Systems and Devices;
Physics;
Handling and Transportation Media;
Material Shaping, Article Manufacturing, Tools;
Amusement, Husbandry, Personal Treatment, Information;
Heat Power and Fluid Engineering; and
Constructions, Supports, Textiles, and Cleaning.

SEC. 6. *Offices reporting to the Assistant Commissioner for Appeals, Legislation and Trademarks.* .01 The Board of Appeals shall conduct hearings and render decisions on appeals from adverse decisions of examiners rejecting claims in patent applications.

.02 The Office of Legislation and International Affairs shall make studies and advise the Commissioner on policy and action concerning matters which may require legislation and on international patent and trademark matters; develop and direct the implementation of related programs; maintain liaison with the Office of the Secretary, the Department of State, and appropriate congressional committees; and conduct negotations in technical patent and trademark matters in establishing or implementing international agreements.

.03 The Trademark Trial and Appeal Board shall be responsible for hearing and deciding adversary proceedings involving interfering applications, oppositions to registration, cancellation petitions, and concurrent use proceedings; and for hearing and deciding appeals from final refusals of the trademark examiners to allow the registration of trademarks.

.04 The Trademark Examining Operation shall be responsible for the classification and examination of applications for the registration of trademarks and service marks and the maintenance of the principal and supplemental registers of trademarks.

SEC. 7. *Offices reporting to the Assistant Commissioner for Search Systems Development.* .01 The Office of Research and Development shall identify areas of needed research, formulate approaches to research problems, and conduct research (or monitor research carried out under contract); and design and install experimental systems, new equipment, or other products of research, and evaluate their effectiveness after installation. Major research and development efforts are aimed at development of automated search and retrieval systems and more effective dissemination of stored information to Patent Office examiners, the patent profession, and the scientific community.

.02 The Office of Search Systems and Documentation shall develop, improve, and maintain subject matter classification systems; improve and maintain the examiner's search file; develop, improve, and maintain operational search systems both manual and electronic, for the storage and identification of patents and patent related literature so that examiners and the public may readily retrieve particular technical information.

SEC. 8. *Offices reporting to the Assistant Commissioner for Administration.* .01 The Office of Finance shall develop and maintain the financial accounting system of the Patent Office; perform accounting operations for the revenue, trust funds, and appropriation of the Patent Office, including maintenance of general accounts and related fiscal records, preparation of financial statements and reports, audit and certification of vouchers for payment, issuance of deposit account statements, initiation of action to collect amounts due the Patent Office, and administration of the payroll system and related employee accounts; and provide financial advice and opinions.

.02 The Office of Personnel shall administer activities relating to recruitment, placement, employee relations, training and career development, incentive awards, performance rating, position classification and wage administration, group-management relations and various employee benefit programs.

.03 The Office of Administrative Services shall provide office-wide services including the procurement and supply of equipment, furnishings, and consumable items; space and facilities management; communications; travel and transportation services; mail, messenger, and general correspondence services; and procurement and supply of graphic services and administrative printing, including office forms and publications. This Office shall also be responsible for carrying out a comprehensive paperwork management program in the Patent Office, embracing forms, reports, directives and records.

.04 The Office of Public Services shall provide the materials and services offered directly to the public many of which are provided on a fee basis. These shall include recording instruments that transfer property rights to patents and trademarks; furnishing copies of patents and office records; providing drafting services; and maintaining collections of pertinent technical and scientific information such as United States and foreign patents, periodicals, books, and other publications for use by patent and trademark examiners and the public.

.05 The Office of Patent Publications shall schedule and manage the processing and movement of allowed patent application files in procuring the creation of full patent text machine language data base and the composition and printing of weekly patent issues and related announcements in the Official Gazette; monitor the quality of performance by contributing sources; provide technical direction and advice in contract administration; and maintain close liaison with the U.S. Government Printing Office; and prepare and issue patent grants.

.06 The Office of Organization and Systems Analysis shall plan and conduct studies designed to improve organization, methods, procedures, workflow, managerial techniques, resource utilization, or otherwise increase efficiency, effectiveness and economy of operations; participate in implementing approved recommendations; counsel and assist program managers in developing and instituting systems changes to enhance effectiveness in meeting operational objectives, but not including computer systems; having responsibility for design and development of systems for printing patents, whether computerized or not, including reproduction subsystems; have responsibility for design and development of micrographic systems; provide data research and statistical analytical services, including mathematical modeling; develop and manage a system for the issuance of internal administrative orders and instructions; promote development of the Patent Office management improvement program and coordinate the collection, review, and submission of reportable plans and accomplishments thereon; maintain a program for the management and control of reports; and make special studies as required.

Effective date: May 4, 1971.

LARRY A. JOBE,
Assistant Secretary for Administration.

[FR Doc. 71-6957; Filed 5-18-71; 8:45 a.m.]

Published in 36 F.R. 9078, May 19, 1971

[887 O.G. 727]

---

(201) SUPPLEMENTAL TO THE MANUAL OF CLASSIFICATION

Over a span of years, Patent Examiners have created "unofficial" subclasses and digests to facilitate searches within the arts under their jurisdiction. A recent inventory of the unofficial U.S. patents in the Examiner search file (exclusive of designs) has enabled the issuance of a listing of unofficial subclasses and digests as a supplement to the Manual of Classification.

Current subscribers to the Manual of Classification shall receive the Supplement as soon as it becomes available (Sept.–Oct. '71), at a cost to be included in a forthcoming renewal fee. New subscriptions shall include the Supplement at a slightly higher cost.

It should be noted that the Supplement is intended only as an interim publication until such time as the Manual of Classification can be completely reprinted with the unofficial subclasses and digests shown in their proper relationship to respective official classes and subclasses. The reprinted Manual, in the described integrated format, shall be derived from computer stored data now in the process of being compiled and should be available by mid-1972.

WILLIAM R. NUGENT,
July 27, 1971. *Assistant Commissioner.*

[889 O.G. 1064]

---

(202) PRESIDENTIAL DOCUMENTS, TITLE 3—THE PRESIDENT

MEMORANDUM OF AUGUST 23, 1971

GOVERNMENT PATENT POLICY

Memorandum for Heads of Executive Departments and Agencies

THE WHITE HOUSE,
Washington, August 23, 1971.

On October 10, 1963, President Kennedy forwarded to the Heads of Executive Departments and Agencies a Memorandum and Statement of Government Patent Policy for their guidance

in determining the disposition of rights to inventions made under Government-sponsored grants and contracts. On the basis of the knowledge and experience then available, this Statement first established Government-wide objectives and criteria, within existing legislative constraints, for the allocation of rights to inventions between the Government and its contractors.

It was recognized that actual experience under the Policy could indicate the need for revision or modification. Accordingly, a Patent Advisory Panel was established under the Federal Council for Science and Technology for the purpose of assisting the agencies in implementing the Policy, acquiring data on the agencies' operations under the Policy, and making recommendations regarding the utilization of Government-owned patents. In December 1965, the Federal Council established the Committee on Government Patent Policy to assess how this Policy was working in practice, and to acquire and analyze additional information that could contribute to the reaffirmation or modification of the Policy.

The efforts of both the Committee and the Panel have provided increased knowledge of the effects of Government patent policy on the public interest. More specifically, the studies and experience over the past 7 years have indicated that:

(a) A single presumption of ownership of patent rights to Government-sponsored inventions either in the Government or in its contractors is not a satisfactory basis for Government patent policy, and that a flexible, Government-wide policy best serves the public interest;

(b) The commercial utilization of Government-sponsored inventions, the participation of industry in Government research and development programs, and commercial competition can be influenced by the following factors: the mission of the contracting agency; the purpose and nature of the contract; the commercial applicability and market potential of the invention; the extent to which the invention is developed by the contracting agency; the promotional activities of the contracting agency; the commercial orientation of the contractor and the extent of his privately financed research in the related technology; and the size, nature and research orientation of the pertinent industry;

(c) In general, the above factors are reflected in the basic principles of the 1963 Presidential Policy Statement.

Based on the results of the studies and experience gained under the 1963 Policy Statement certain improvements in the Policy have been recommended which would provide (1) agency heads with additional authority to permit contractors to obtain greater rights to inventions where necessary to achieve utilization or where equitable circumstances would justify such allocation of rights, (2) additional guidance to the agencies in promoting the utilization of Government-sponsored inventions, (3) clarification of the rights of States and municipal governments in inventions in which the Federal Government acquires a license, and (4) a more definitive data base for evaluating the administration and effectiveness of the Policy and the feasibility and desirability of further refinement or modification of the Policy.

I have approved the above recommendations and have attached a revised Statement of Government Patent Policy for your guidance. As with the 1963 Policy Statement, the Federal Council shall make a continuing effort to record, monitor and evaluate the effects of this Policy Statement. A Committee on Government Patent Policy, operating under the aegis of the Federal Council for Science and Technology, shall assist the Federal Council in these matters.

This memorandum and statement of policy shall be published in the Federal Register.

RICHARD NIXON.

STATEMENT OF GOVERNMENT PATENT POLICY

BASIC CONSIDERATIONS

A. The Government expends large sums for the conduct of research and development which results in a considerable number of inventions and discoveries.

B. The inventions in scientific and technological fields resulting from work performed under Government contracts constitute a valuable national resource.

C. The use and practice of these inventions and discoveries should stimulate inventors, meet the needs of the Government, recognize the equities of the contractor, and serve the public interest.

D. The public interest in a dynamic and efficient economy requires that efforts be made to encourage the expeditious development and civilian use of these inventions. Both the need for incentives to draw forth private initiatives to this end, and the need to promote healthy competition in industry must be weighed in the disposition of patent rights under Government contracts. Where exclusive rights are acquired by the contractor, he remains subject to the provisions of the antitrust laws.

E. The public interest is also served by sharing of benefits of Government-financed research and development with foreign countries to a degree consistent with our international programs and with the objectives of U.S. Foreign policy.

F. There is growing importance attaching to the acquisition of foreign patent rights in furtherance of the interests of U.S. industry and the Government.

G. The prudent administration of Government research and development calls for a Government-wide policy on the disposition of inventions made under Government contracts reflecting common principles and objectives, to the extent consistent with the missions of the respective agencies. The policy must recognize the need for flexibility to accommodate special situations.

POLICY

SECTION 1. The following basic policy is established for all Government agencies with respect to inventions or discoveries made in the course of or under any contract of any Government agency, subject to specific statutes governing the disposition of patent rights of certain Government agencies.

(a) Where

(1) a principal purpose of the contract is to create, develop or improve products, processes, or methods which are intended for commercial use (or which are otherwise intended to be made available for use) by the general public at home or abroad, or which will be required for such use by governmental regulations; or

(2) a principal purpose of the contract is for exploration into fields which directly concern the public health, public safety, or public welfare; or

(3) the contract is in a field of science or technology in which there has been little significant experience outside of work funded by the Government, or where the Government has been the principal developer of the field, and the acquisition of exclusive rights at the time of contracting might confer on the contractor a preferred or dominant position; or

(4) the services of the contractor are

(i) for the operation of a Government-owned research or production facility; or

(ii) for coordinating and directing the work of others,

the Government shall normally acquire or reserve the right to acquire the principal or exclusive rights throughout the world in and to any inventions made in the course of or under the contract.

In exceptional circumstances the contractor may acquire greater rights than a nonexclusive license at the time of contracting where the head of the department or agency certifies that such action will best serve the public interest. Greater rights may also be acquired by the contractor after the invention has been identified where the head of the department or agency determines that the acquisition of such greater rights is consistent with the intent of this Section 1(a) and is either a necessary incentive to call forth private risk capital and expense to bring the invention to the point of practical application or that the Government's contribution to the invention is small compared to that of the contractor. Where an identified invention made in the course of or under the contract is not a primary object of the contract, greater rights may also be acquired by the contractor under the criteria of Section 1(c).

(b) In other situations, where the purpose of the contract is to build upon existing knowledge or technology, to develop information, products, processes, or methods for use by the

Government, and the work called for by the contract is in a field of Technology in which the contractor has acquired technical competence (demonstrated by factors such as know-how, experience, and patent position) directly related to an area in which the contractor has an established nongovernmental commercial position, the contractor shall normally acquire the principal or exclusive rights throughout the world in and to any resulting inventions.

(c) Where the commercial interests of the contractor are not sufficiently established to be covered by the criteria specified in Section 1(b) above, the determination of rights shall be made by the agency after the invention has been identified, in a manner deemed most likely to serve the public interest as expressed in this policy statement, taking particularly into account the intentions of the contractor to bring the invention to the point of commercial application and the guidelines of Section 1(a) hereof, provided that the agency may prescribe by regulation special situations where the public interest in the availability of the inventions would best be served by permitting the contractor to acquire at the time of contracting greater rights than a nonexclusive license.

(d) In the situations specified in Sections 1(b) and 1(c), when two or more potential contractors are judged to have presented proposals of equivalent merit, willingness to grant the Government principal or exclusive rights in resulting inventions will be an additional factor in the evaluation of the proposals.

(e) Where the principal or exclusive rights in an invention remain in the contractor, he should agree to provide written reports at reasonable intervals, when requested by the Government, on the commercial use that is being made or is intended to be made of inventions made under Governmental contracts.

(f) Where the principal or exclusive rights in an invention remain in the contractor, unless the contractor, his licensee, or his assignee has taken effective steps within three years after a patent issues on the invention to bring the invention to the point of practical application or has made the invention available for licensing royalty-free or on terms that are reasonable in the circumstances, or can show cause why he should retain the principal or exclusive rights for a further period of time, the Government shall have the right to require the granting of a nonexclusive or exclusive license to a responsible applicant(s) on terms that are reasonable under the circumstances.

(g) Where the principal or exclusive rights to an invention are acquired by the contractor, the Government shall have the right to require the granting of a nonexclusive or exclusive license to a responsible applicant(s) on terms that are reasonable in the circumstances (i) to the extent that the invention is required for public use by governmental regulations, or (ii) as may be necessary to fulfill health or safety needs, or (iii) for other public purposes stipulated in the contract.

(h) Whenever the principal or exclusive rights in an invention remain in the contractor, the Government shall normally acquire, in addition to the rights set forth in Sections 1(e), 1(f), and 1(g),

(1) at least a nonexclusive, nontransferable, paid-up license to make, use, and sell the invention throughout the world by or on behalf of the Government of the United States (including any Government agency) and States and domestic municipal governments, unless the agency head determines that it would not be in the public interest to acquire the license for the States and domestic municipal governments; and

(2) the right to sublicense any foreign government pursuant to any existing or future treaty or agreement if the agency head determines it would be in the national interest to acquire this right; and

(3) the principal or exclusive rights to the invention in any country in which the contractor does not elect to secure a patent.

(i) Whenever the principal or exclusive rights in an invention are acquired by the Government, there may be reserved to the contractor a revocable or irrevocable nonexclusive royalty-free license for the practice of the invention throughout the world; an agency may reserve the right to revoke such license so that it might grant an exclusive license when it determines that some degree of exclusivity may be necessary to encourage further development and commercialization of the invention. Where the Government has a right to acquire the principal or exclusive rights to an invention and does not elect to secure a patent in a foreign country, the Government may permit the contractor to acquire such rights in any foreign country in which he elects to secure a patent, subject to the Government's rights set forth in Section 1(h).

SEC. 2. Under regulations prescribed by the Administrator of General Services, Government-owned patents shall be made available and the technological advances covered thereby brought into being in the shortest time possible through dedication or licensing, either exclusive or non-exclusive, and shall be listed in official Government publications or otherwise.

SEC. 3. The Federal Council for Science and Technology in consultation with the Department of Justice shall prepare at least annually a report concerning the effectiveness of this policy, including recommendations for revision or modification as necessary in light of the practices and determinations of the agencies in the disposition of patent rights under their contracts. The Federal Council for Science and Technology shall continue to

(a) develop by mutual consultation and coordination with the agencies common guidelines for the implementation of this policy, consistent with existing statutes, and to provide overall guidance as to disposition of inventions and patents in which the Government has any right or interest; and

(b) acquire data from the Government agencies on the disposition of patent rights to inventions resulting from federally financed research and development and on the use and practice of such inventions to serve as bases for policy review and development; and

(c) make recommendations for advancing the use and exploitation of Government-owned domestic and foreign patents.

Each agency shall record the basis for its actions with respect to inventions and appropriate contracts under this statement.

SEC. 4. Definitions: As used in this policy statement, the stated terms in singular and plural are defined as follows for the purposes hereof:

(a) *Government agency*—includes any executive department, independent commission, board, office, agency, administration, authority, Government corporation, or other Government establishment of the executive branch of the Government of the United States of America.

(b) *States*—means the States of the United States, the District of Columbia, Puerto Rico, the Virgin Islands, American Samoa, Guam and the Trust Territory of the Pacific Islands.

(c) *Invention, or Invention or discovery*—includes any art, machine, manufacture, design, or composition of matter, or any new and useful improvement thereof, or any variety of plant, which is or may be patentable under the Patent Laws of the United States of America or any foreign country.

(d) *Contractor*—means any individual, partnership, public or private corporation, association, institution, or other entity which is a party to the contract.

(e) *Contract*—means any actual or proposed contract, agreement, grant, or other arrangement, or subcontract entered into with or for the benefit of the Government where a purpose of the contract is the conduct of experimental, developmental, or research work.

(f) *Made*—when used in relation to any invention or discovery means the conception or first actual reduction to practice of such invention in the course of or under the contract.

(g) *To the point of practical application*—means to manufacture in the case of a composition or product, to practice in the case of a process, or to operate in the case of a machine and under such conditions as to establish that the invention is being worked and that its benefits are reasonably accessible to the public.

[FR Doc. 71-12623; Filed 8-25-71; 10:41 a.m.]

36 F.R. 16887-16892; Aug. 26, 1971

[890 O.G. 1302]

(203) PUBLIC LAW 92—132

[92nd Congress, S. 1253]

October 5, 1971

AN ACT

85 Stat. 364

To amend section 6 of title 35, United States Code, "Patents," to authorize domestic and international studies and programs relating to patents and trademarks.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That section 6 of title 35, United States Code, is amended to read as follows:

Patents, trademarks. International programs, U.S. participation. 66 Stat. 793.

"§ 6. *Duties of Commissioner*

"(a) The Commissioner, under the direction of the Secretary of Commerce, shall superintend or perform all duties required by law respecting the granting and issuing of patents and the registration of trademarks; shall have the authority to carry on studies and programs regarding domestic and international patent and trademark law; and shall have charge of property belonging to the Patent Office. He may, subject to the approval of the Secretary of Commerce, establish regulations, not inconsistent with law, for the conduct of proceedings in the Patent Office.

"(b) The Commissioner, under the direction of the Secretary of Commerce, may, in coordination with the Department of State, carry on programs and studies cooperatively with foreign patent offices and international intergovernmental organizations, or may authorize such programs and studies to be carried on, in connection with the performance of duties stated in subsection (a) of this section.

Transfer of funds.

"(c) The Commissioner, under the direction of the Secretary of Commerce, may, with the concurrence of the Secretary of State, transfer funds appropriated to the Patent Office, not to exceed $100,000 in any year, to the Department of State for the purpose of making special payments to international intergovernmental organizations for studies and programs for advancing international cooperation concerning patents, trademarks, and related matters. These special payments may be in addition to any other payments or contributions to the international organization and shall not be subject to any limitations imposed by law on the amounts of such other payments or contributions by the Government of the United States."

Approved October 5, 1971.

LEGISLATIVE HISTORY:

HOUSE REPORT No. 92-475 (Comm. on the Judiciary).
SENATE REPORT No. 92-71 (Comm. on the Judiciary).
CONGRESSIONAL RECORD, Vol. 117 (1971):
Apr. 22, considered and passed Senate.
Sept. 28, considered and passed House.

[892 O.G. 1600]

---

(204) NUMBERS FOR WHICH NO PATENTS HAVE ISSUED

The Calendar Year 1970 Index of Patents will be available from the Superintendent of Documents, Government Printing Office in the very near future. Beginning with this year's Index, Part II "Subjects of Inventions" will list each patent number for which no patent was issued during the year. The 1970 Index will also include all the patent numbers for the years 1920 through 1969 for which no patents issued.

Dec. 13, 1971.

ROBERT J. RISH,
Acting Assistant Commissioner for Administration.

[894 O.G. 464]

---

(205) CHANGES IN PATENT FRONT PAGE

Changes in the front page format of patents inaugurated August 4, 1970 will become effective with the issue of patents on January 18, 1972. They relate mainly to the sequence and grouping of data items and to various features of typography. The revised format is illustrated in a specimen which appears below.

Data elements presented on the front page are accompanied by a number which appears in brackets. They are the "ICIREPAT Numbers for Identification of Data" (INID) which have been adopted internationally for use on patents and published applications to facilitate the use of such documents.

The definitions of INID numbers for data elements which appear in U.S. patents are set forth below:

[15] "Number of an examined patent, inventor's certificate or like granted or approved document."
[21] "Number as assigned to the application. . . ."
[22] "Date(s) of filing of application(s)."
[30] "Convention priority data."
The separate elements comprising such data—i.e., application number, filing date, and country—are not individually coded on U.C. patents. Only the generic INID number is used.
[45] "Date of publication by printing or similar process of a patent or like approved document."
[51] "International Patent Classification (preferably preceded by "Int. Cl.")."
[52] "Domestic or national classification."
[54] "Title of the invention."
[56] "List of prior art documents, if separate from the text of the document."
[57] "Abstract or claim."
[58] "Field of search."

[60] "Reference to other applications filed or documents issued in the same country, to which the document is legally related."

This generic INID number is used when the relationship of the patent to other applications is due both to [62] division and [63] continuation.

[62] "Reference to other applications filed or documents issued in the same country, to which the document is legally related: Relation due to division(s)."

[63] "Reference to other applications filed or documents issued in the same country, to which the document is legally related: Relation due to continuation(s)."

[72] "Name(s) of inventor(s) if known to be such."

[73] "Name of grantee(s) if other than applicant or inventor."

R. J. RISH,
Acting Assistant Commissioner for Administration.

Dec. 21, 1971.

SPECIMEN

United States Patent

Clark et al.

[15] **3,624,090**

[45] **Nov. 30, 1971**

[54] PREPARATION OF PYRIDINE

[72] Inventors: **Duncan Clark**, Norton-on-Tees; **Percy Hayden**, Norton-on-Tees; **Alan Bell**, Runcorn; **John Edward Colchester**, Runcorn, all of England

[73] Assignee: **Imperial Chemical Industries Limited**, London England

[22] Filed: **Apr. 7, 1969**

[21] Appl. No.: **817,251**

Related U.S. Application Data

[60] Continuation-in-part of Ser. No. 669,733, Sept. 22, 1967, abandoned, which is a division of Ser. No. 493,231, Oct. 5, 1965, abandoned.

[30] **Foreign Application Priority Data**

Apr. 7, 1965 Great Britain 14,778/65

[52] U.S. Cl. ..... 260/83.7 R, 252/431, 260/94.2 M

[51] Int. Cl. C08d 1/32, C08f 1/56, C08f 15/04

[58] Field of Search ..... 260/94.2 M, 83.7, 665; 252/431, 431 P

[56] **References Cited**

UNITED STATES PATENTS

3,372,128	3/1968	Maeda et al.	260/604
3,177,257	4/1965	Detling et al.	260/604

FOREIGN PATENTS OR APPLICATIONS

878,802	10/1961	Great Britain	260/530 U
999,836	7/1965	Great Britain	260/530 U
903,034	8/1962	Great Britain	260/533

OTHER PUBLICATIONS

Dandegaonker et al. Monatsh. Chem. Vol. 96, No. 2, pages 614–624 (1965) Q 1.M73

Jerchel et al. Liebig's Ann. Chem. Vol. 575, pages 162–173 (1952). QD1.L7

Rao et al. Chem Abst. Vol. 53, columns 18012–3 (1959) QD1.A51.

Primary Examiner—Henry R. Jiles
Assistant Examiner—Cecilia M. Shurko
Attorney—Cushman, Darby & Cushman

[57] **ABSTRACT**

There is provided a process for preparing pyridine wherein substituted or unsubstituted glutaraldehydes or precursors thereof are reacted in the liquid phase with ammonium ions in the presence of molecular oxygen and cupric ions and in a medium comprising an alkanoic acid. The alkanoic acid preferably has up to 6 carbon atoms in the alkyl group, such as acetic acid. The cupric ions may be supplied in the form of a salt such as cupric acetate. Conveniently, the reaction temperature is up to 150° C. and the partial pressure of oxygen is at least 0.5 atmospheres.

10 Claims, No Drawings

[894 O.G. 464]

---

(206) NOTICE TO OFFICIAL GAZETTE SUBSCRIBERS

It has come to the attention of the Patent Office that some subcribers to the OFFICIAL GAZETTE have not been receiving all of their copies of the patent and/or trademark sections of the OFFICIAL GAZETTE. Several of the incidents brought to our attention involved situations where subscribers had recently renewed their subscriptions.

This matter was brought to the attention of the Superintendent of Documents who advised us that subscribers to the OFFICIAL GAZETTE are notified approximately 3 months in advance that their subscriptions are about to expire. It was indicated that if these notices are promptly utilized to renew subscriptions, no difficulties will arise.

However, in order to facilitate the resolution of any problems which may arise concerning subscriptions to the OFFICIAL GAZETTE, an official liaison has been established between the Patent Office and the Superintendent of Documents. Under this arrangement, any person experiencing difficulties in obtaining copies of the OFFICIAL GAZETTE should contact Robert Rish, Director, Office of Public Services, U.S. Patent Office, Washington, D.C., 20231. All such inquiries will be given prompt attention.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Apr. 18, 1972.

[898 O.G. 738]

(207) LEGAL JOURNALS

[37 CFR Parts 1, 2]

Proposed Placing of Announcements

Notice is hereby given that pursuant to the authority contained in section 31 of the Act of July 19, 1952 (66 Stat. 795; 35 U.S.C. section 31), the Patent Office proposes to amend Title 37 of the Code of Federal Regulations by revising §§ 1.345(b) and 2.14(b).

All persons are invited to present their written views, objections, recommendations, or suggestions in connection with the proposed changes on or before July 18, 1972. Such views, objections, recommendations, and suggestions should be addressed to the Commissioner of Patents, Washington, D.C. 20232. No oral hearing will be held.

The proposed changes, if adopted, will permit agents and attorneys who practice before the Patent Office in patent or trademark matters to place dignified announcements in legal journals, intended essentially for lawyers only, to the effect that they are available to act as consultants to or as associates of other lawyers in the practice of patent or trademark law before the Patent Office.

These changes would bring Patent Office regulations into conformance with that portion of disciplinary rule, DR 2–105(A)(3) of the Code of Professional Responsibility of the American Bar Association, which provides that "(a) lawyer

shall not hold himself out publicly as a specialist or as limiting his practice except (that) * * * (a) lawyer available to act as a consultant to or as an associate of other lawyers in a particular branch of law or legal service may * * * publish in legal journals a dignified announcement of such announcement, but the announcement shall not contain a representation of special competence or experience."

The proposed changes, however, would not be construed to permit a registered attorney or agent to "distribute (such announcements) to other lawyers," as now permitted by DR 2–105.

The sections, if amended as proposed, would read as follows:

§ 1.345 *Advertising.*

* * * * *

(b) The use of simple professional letterheads, calling cards, or office signs, simple announcements necessitated by opening an office, change of association, or change of address, distributed to clients and friends, and insertion of listings in common form (not display) in a classified telephone or city directory, dignified announcements addressed to lawyers, in legal journals intended essentially for lawyers only, of availability to act as a consultant to or as an associate of other lawyers in the practice of patent law before the Patent Office where such announcements are permitted by local custom, and listings and professional cards with biographical data in standard professional directories shall not be considered a violation of the rule.

* * * * *

§ 2.14 *Advertising.*

* * * * *

(b) The use of simple professional letterheads, calling cards, or office signs; simple announcements necessitated by opening an office, change of association, or change of address, distributed to clients and friends; listings in common form (not display) in a classified telephone or city directory; dignified announcements addressed to lawyers, in legal journals intended essentially for lawyers only, of availability to act as a consultant to or as an associate of other lawyers in the practice of trademark law before the Patent Office where such announcements are permitted by local custom; and listings and professional cards with biographical data in standard professional directories are not prohibited.

* * * * *

Dated: May 2, 1972.

RICHARD A. WAHL,
Acting Commissioner of Patents.

Approved: May 3, 1972.

JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

[FR Doc. 72–7160; Filed 5–10–72; 8:49 am]

Published in 37 FR 9488; May 11, 1972

[898 O.G. 408]

---

(208) SOLICITATION OF PUBLIC VIEWS CONCERNING CHANGES IN PATENT OFFICE PRACTICES AN PROCEDURES

In the effort to continually improve operations and to respond to changing circumstances, the procedures and practices of the Patent Office are revised from time to time. While comments are requested and public hearings held on proposed changes in the Rules of Practice, changes in other practices and procedures of the Office have generally been implemented on the basis of informal and more limited liaison with our constituents. This has, on occasion, given rise to inquiries as to the reasons for and wisdom of certain of these changes, as well as to criticisms and proposals for further changes.

While all changes in procedure must take into consideration the efficient operation of the Patent Office, we have determined that on a trial basis, we will, where appropriate, solicit views and comments of the patent community so that they might be taken into account in shaping the procedures of the Patent Office. The solicitation of such views will focus primarily on proposed changes in practices and procedures of the Office which have substantial impact on individuals dealing with the Patent Office. Our first such effort involves the question of whether claims or abstracts are more appropriate for publication in the OFFICIAL GAZETTE, and this is the subject of a separate notice in this issue.

Whether this practice of public participation is continued will depend in large part upon the public response to notices of this nature. In the past, public response to the solicitation of views has been rather limited and has principally been from those who were opposed to proposed changes in rules and practices. Accordingly, it is requested that interested parties submit their views irrespective of whether they agree or disagree with the proposal under consideration.

ROBERT GOTTSCHALK,
May 22, 1972. *Commissioner of Patents.*

[899 O.G. 820]

---

(209) PRINTING OF FIRM NAMES ON PATENTS—REQUEST FOR COMMENTS

The Patent Office discontinued the recognition of firms of attorneys and agents by rule change, effective July 2, 1971 (890 O.G. 298). Since that time there has been much interest concerning the propriety of printing firm names on the "front page" of patents.

It has been argued that when one is seeking information concerning a patent, it is logical to communicate with the attorney if the inventor cannot be located. The argument continues that it would be more likely for a firm to have continuity of existence and to have retained the file on the case as compared to an individual attorney. While there have been some suggestions that the listing of either a firm or individual attorney on a patent may be unethical and be considered advertising, the general consensus of the patent bar appears to be that such a listing is merely informative and is not objectionable.

The Board of Managers of the American Patent Law Association has urged the Patent Office to revise the transmittal form of the Notice of Allowance and to print on the front page of the patent the name of the firm and/or individual designated on the form returned with the base issue fee.

It is proposed that form POL–85(b) be redesigned to provide for the person submitting the base issue fee to indicate the names and registration numbers of not more than three registered attorneys or agents *or* the name of a firm which includes registered attorneys or agents. An indication would also be required as to whether the name supplied was that of an attorney, agent, or firm. This information would then be used to print the name on the front page of the patent. If no information is supplied, the patent would not include the name of a practitioner or firm, regardless of whether a registered attorney or agent is of record.

Views and comments of the patent community are solicited for consideration in the final determination of the decision and procedure, if appropriate, for printing names of practitioners and firms on the front page of patents. Interested parties should submit their comments in writing prior to Jan. 1, 1973, addressed to the Commissioner of Patents, Washington, D.C. 20231.

ROBERT GOTTSCHALK,
Sept. 8, 1972. *Commissioner of Patents.*

[903 O.G. 369]

---

(210) REDUCTION IN PATENTS GRANTED

The backlog of patent applications awaiting printing has been virtually eliminated. Effective with patents issuing on October 31, 1972, the weekly number of General and Mechanical, Electrical, and Chemical patents granted will be determined by the availability of applications in which the Base Issue Fee has been paid. Applicants who desire to obtain early patent grant dates are encouraged to remit payment of Base Issue Fees promptly.

WILLIAM I. MERKIN,
Oct. 10, 1972. *Assistant Commissioner for Administration.*

[903 O.G. 1512]

(211) ICIREPAT NUMBERS FOR IDENTIFICATION OF BIBLIOGRAPHIC DATA ON THE FIRST PAGE OF PATENT AND LIKE DOCUMENTS

The Paris Union Committee for International Cooperation in Information Retrieval Among Patent Offices (ICIREPAT) has recently approved revisions in INID Codes (ICIREPAT Numbers for Identification of Data) which become effective for use by the countries which apply such codes to their documents on January 1, 1973. A complete list of the Codes, as revised, appears below.

Changes in INID Codes which particularly affect their application to U.S. patents consist of the provision of the new codes [75] and [76] that are intended primarily for use by countries in which the national laws require that the inventor and applicant are normally the same. Use of the code [72] which was heretofore applied to U.S. patents will be discontinued and, in lieu thereof, codes [75] and [76], as appropriate, will be used effective with the patent issue of January 2, 1973.

The purpose of INID Codes is to provide a means whereby the various data appearing on the first page of patent and like documents can be identified without knowledge of the language used and the laws applied. They are now used by a number of Patent Offices and have been applied to U.S. patents since Aug. 4, 1970. Some of the codes are not pertinent to the documents of a particular country and some which are may, in fact, not be used. Those codes which are not applicable to U.S. patents or not used are identified in the list below.

[10] *Document identification*

- [11] Number of the document
- [19] ICIREPAT country code, or other identification, of the country publishing the document

[20] *Domestic filing data*

- [21] Number(s) assigned to the application(s), e.g. "Numero d'enregistrement national," "Aktenzeichen"
- [22] Date(s) of filing application(s)
- [23] Other date(s) of filing, including exhibition filing date and date of filing complete specification following provisional specification [1]

[30] *Convention priority data* [2]

- [31] Number(s) assigned to priority application(s)[1]
- [32] Date(s) of filing of priority application(s)[1]
- [33] Country (countries) in which priority application(s) was (were) filed [1]

[40] *Date(s) of making available to the public*

- [41] Date of making available to the public by viewing, or copying on request, an unexamined document, on which no grant has taken place on or before the said date [1]
- [42] Date of making available to the public by viewing, or copying on request, an examined document, on which no grant has taken place on or before the said date [1]
- [43] Date of publication by printing or similar process of an unexamined document, on which no grant has taken place on or before the said date [1]
- [44] Date of publication by printing or similar process of an examined document, on which no grant has taken place on or before the said date [1]
- [45] Date of publication by printing or similar process of a document, on which grant has taken place on or before the said date
- [46] Date of publication by printing or similar process of the claim(s) only of a document [1]
- [47] Date of making available to the public by viewing, or copying on request, a document on which grant has taken place on or before the said date [1]

[50] *Technical information*

- [51] International Patent Classification
- [52] Domestic or national classification
- [53] Universal Decimal Classification [1]
- [54] Title of the invention
- [55] Keywords [1]
- [56] List of prior art documents, if separate from descriptive text
- [57] Abstract or claim
- [58] Field of search

[60] *Reference(s) to other legally related domestic document(s)* [3]

- [61] Related by addition(s)[1]
- [62] Related by division(s)
- [63] Related by continuation(s)
- [64] Related by reissue(s)

[70] *Identification of parties concerned with the document*

- [71] Name(s) of applicant(s)[1]
- [72] Name(s) of inventor(s) if known to be such [1]
- [73] Name(s) of grantee(s)
- [74] Name(s) of attorney(s) or agent(s)[1]
- [75] Name(s) of inventor(s) who is(are) also applicant(s)
- [76] Name(s) of inventor(s) who is(are) also applicant(s) and grantee(s)

Codes [75] and [76] are intended primarily for use by countries in which the national laws require that the inventor and applicant are normally the same. In other cases [71] and [72] or [71], [72] and [73] should generally be used.

Approved:

WILLIAM I. MERKIN,
Assistant Commissioner for Administration.

Nov. 21, 1972.

Notes concerning the application of INID Codes to U.S. patents:

[1] This item is either not applicable to U.S. patents or, if applicable, is either not coded or not assigned this code.

[2] The respective specific data elements within this category are not individually coded. They are printed in a particular format under the caption "Foreign Application Priority Data" which is identified by the INID Code [30].

[3] The specific data applicable to a particular patent is printed under the caption "Related U.S. Application Data." Where the relationship is due solely to division or to continuation and/or continuation-in-part, the data is identified by the appropriate specific INID Code, i.e., [62] or [63], respectively. Where the relationship is due to any combination of these two specific sub-categories, the data is identified by use of the generic INID Code [60].

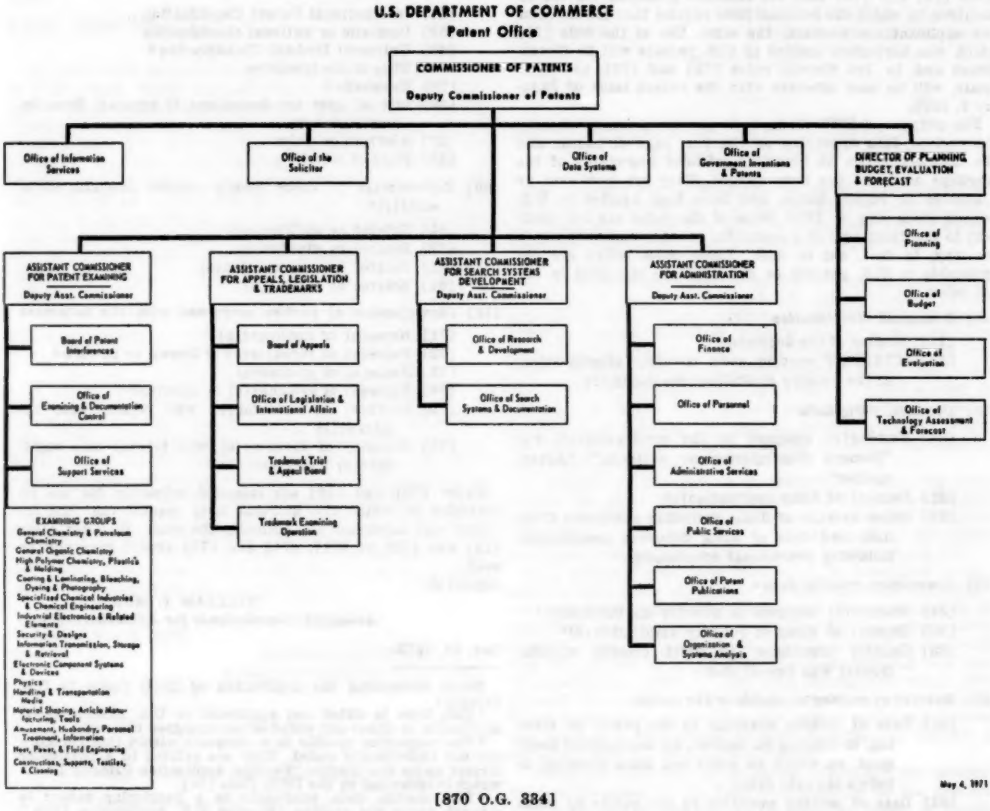
[905 O.G. 684]

(212) ORGANIZATION OF THE PATENT OFFICE

The accompanying block type organization chart printed herein shows the present organization of the Patent Office. It is based upon Department of Commerce Organization Order 30–3B, which explains the functions of the several units comprising the organization set forth in the chart. The Order is published following the chart.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

December 18, 1969.


U.S. DEPARTMENT OF COMMERCE
Patent Office
COMMISSIONER OF PATENTS
Deputy Commissioner of Patents
Office of Information Services
Office of the Solicitor
Office of Data Systems
Office of Government Inventions & Patents
DIRECTOR OF PLANNING, BUDGET, EVALUATION & FORECAST
Office of Planning
Office of Budget
Office of Evaluation
Office of Technology Assessment & Forecast
ASSISTANT COMMISSIONER FOR PATENT EXAMINING
Deputy Asst. Commissioner
Board of Patent Interferences
Office of Examining & Documentation Control
Office of Support Services
EXAMINING GROUPS
General Chemistry & Petroleum Chemistry
General Organic Chemistry
High Polymer Chemistry, Plastics & Molding
Coating & Laminating, Bleaching, Dyeing & Photography
Specialized Chemical Industries & Chemical Engineering
Industrial Electronics & Related Elements
Security & Designs
Information Transmission, Storage & Retrieval
Electronic Component Systems & Devices
Physics
Handling & Transportation Media
Material Shaping, Article Manufacturing, Tools
Amusement, Husbandry, Personal Treatment, Information
Heat, Power, & Fluid Engineering
Constructions, Supports, Textiles, & Cleaning
ASSISTANT COMMISSIONER FOR APPEALS, LEGISLATION & TRADEMARKS
Board of Appeals
Office of Legislation & International Affairs
Trademark Trial & Appeal Board
Trademark Examining Operation
ASSISTANT COMMISSIONER FOR SEARCH SYSTEMS DEVELOPMENT
Deputy Asst. Commissioner
Office of Research & Development
Office of Search Systems & Documentation
ASSISTANT COMMISSIONER FOR ADMINISTRATION
Deputy Asst. Commissioner
Office of Finance
Office of Personnel
Office of Administrative Services
Office of Public Services
Office of Patent Publications
Office of Organization & Systems Analysis
May 4, 1971

[870 O.G. 334]

INDEX OF PATENT NOTICES

A

Abandonment: *Items*
- Application at Board of Appeals — 147
- Transfer of Drawings — 82

Abstracts, Patent:
- Format — 168
- Printed in Official Gazette — 166, 169, 170
- Requirements — 165, 167

Access to Files — 25, 28

Actions, Office:
- Abbreviated First Action — 112, 117
- Attachments to — 7
- Carbon Copy — 18
- First Page Form — 10, 93

Affidavits — 111, 113, 119, 120, 157

Amendments:
- After Final Rejection — 89, 107
- Basis in Original Disclosure — 121
- Claims—Brackets — 123
- Examiners' Amendment Practice — 53, 122
- Fees — 44, 52
- Hand Delivery of — 6, 17, 107

Appeals:
- Abandonment of Application on Appeal — 147
- Attorney Appearances Before Board — 56
- Briefs — 113, 141, 142, 144, 149, 151, 152
- Confidential Memoranda — 150
- Dismissal — 152
- Examiner Appearance Before Board — 146, 148
- Format of Notice — 145
- Group Number on Papers — 3
- Reopening of Prosecution After Decision by Board — 106
- To C.C.P.A. — 154

Application Branch:
- Service — 21
- Temporary Parallel Branch — 24

Assignee, Issue of Patent to — 39

Assignments:
- Accessibility of Records — 35
- Omitted in Certified Copies — 40
- Notification re Conflict — 36
- Recording of Certified Copies — 37
- Statement at Time of Issue — 39

Attorneys, Agents and Firms:
- Recognition — 57, 58, 59
- Standard of Conduct — 57, 207

C

Certificates of Correction — 162–164

Certified Copies — 22, 26, 29, 34, 40, 42

Claim Interpretation — 104

Claims:
- Conflicting — 133
- Dependent — 47
- Markush Group — 87, 128
- Method — 102
- Negative Limitation — 87, 99
- Non-Elected — 129
- Versus Abstracts — 170

Classification:
- Patent — 16, 177
- Preliminary by Applicant — 31
- Supplemental to Manual — 201

Computer Programs — 105, 188, 192

Concordance, U.S. to I.P.C. — 179

Continuing Applications:
- Chains of — 76
- Continuations — 21, 116
- Foreign Priority — 77
- Reference Citation in — 176
- Res Judicata — 95
- Streamline Continuations — 116

Copiers, Coin-Operated — 54

Correspondence:
- Application and Proceeding — 57
- Necessary Information on Papers — 3, 14, 19, 21, 67, 73
  - Telephone Numbers — 2, 4
  - ZIP Code — 5
- Transmittal Forms — 15, 39

Customer Relation Center — 27

D

Declaration: *Items*
- Form — 20, 33, 69, 70
- In Lieu of Oath — 60

Defense Inspection — 198

Defensive Publication Program — 187, 189, 191, 194

Delay in Issuance — 197

Dependent Claims — 47

Deposit Accounts — 43, 45, 46, 48, 53

Design Patent Practice — 101

Directory of Registered Attorneys/Agents — 12

Disclaimers:
- Statutory — 133
- Terminal — 86, 94, 100, 133

Disclosure, Application — 63, 64, 68, 114

Disclosure Document Program — 199

Divisional Application — 21, 67, 116

Double Patenting — 90, 94, 100

Drawings — 21, 80–84

Drug Guidelines — 96

E

Effective Date of U.S. Patent — 74

Election of Species — 126, 128, 133

Environmental Quality — 109, 115

Examiners' Amendment Practice — 53, 122

Extensions of Time — 136, 137, 145, 151, 181, 183

F

Fees — 44, 48–52, 57, 80, 143, 210

Filing Date:
- Affected by Postal Emergency — 185
- Incorporation by Reference — 65
- Photoprints as Drawing — 80
- Plant Patent Applications — 62

Final Rejection:
- First Action — 103
- Non-Final Second Action — 91
- Prosecution After Final Rejection — 89, 107, 113
- Time for Response — 138, 139

First Action Procedure — 93, 112, 117, 118

Foreign Exchange Programs:
- Philippines-U.S. — 186
- Swedish-U.S. — 193

Foreign, Miscellaneous Matters:
- Citation for Foreign Patents — 171
- Informal Application — 85
- Orders for Copies of Foreign Patents — 13
- Priority in Reissue Applications — 72
- Priority in Continuing Application — 77

Formats:
- Certificate of Correction — 164
- Continuation — 116
- Declaration — 20
- Formula and Table — 71
- Front Page of Patent — 198
- Notice of Appeal — 145
- Patent Headings — 75, 198, 205, 209
- Terminal Disclaimer — 86, 133

Function of Machine—Rejection — 102

G

German Requirements in Convention Cases — 78

Government Patent Policy — 202

Graphic Symbols — 84

Guidelines:
- Computer Program Applications—Rescission of Guidelines — 105, 188, 192
- Disclosures of Utility in Drug Cases — 96
- Incorporation by Reference in Patent Applications — 64, 65
- Model Patent Application — 61
- Preparation of Patent Abstracts — 168
- Preparation of Patent Application Disclosures — 63, 68

H

Headings, Patent — 75

Hearings:
- Appeal — 146, 148
- Trademark

Holidays — 195

I

Items

ICIREPAT Identifiers ---- 211
Incorporation by Reference ---- 64, 65
Informal Applications of Foreign Applications ---- 85
Inquiries, Status ---- 1, 23, 27
Interference Practice ---- 156–161
Interviews ---- 124, 125
Inventor's Certificate ---- 79
Inventors, Change of ---- 130

M

Machine Search Service ---- 180
Mailing Address, Patent Office ---- 11
Microorganisms, Deposit ---- 114

N

Non-Elected Claims ---- 129
Non-Final Second Action Rejection Practice ---- 90

O

Official Gazette ---- 206
Orders:
- Certified Copies ---- 22, 25
- Defensive Publication ---- 192
- Foreign Patents and/or Published Application ---- 13
- Machine Search Service ---- 178
- Microfilm Classification Record ---- 16
- Reference Cited in SSP Actions ---- 174

Organization Chart ---- 212

P

Patent Copies ---- 29, 32, 204, 209
Patent Files ---- 41
Patent Office, Organization and Function ---- 200, 208, 212
Petitions:
- Patent Application ---- 57
- To Revive ---- 108, 110

Photocopies of Application ---- 66
Photoprints as Drawings ---- 80
Plant Patent Application ---- 62
Post Card Receipt ---- 9
Post Final Rejection Practice ---- 89, 107, 113
Postal Emergency:
- Earlier Filing Date ---- 185
- Extension of Time ---- 181, 183
- Field Offices ---- 181, 183, 184

Printing Priorities ---- 190
Prior Art:
- Voluntary Citation by Applicants ---- 175
- Rejection Not Based on Prior Art ---- 86

Priority:
- Filing of Foreign Priority Papers ---- 73
- Foreign Priority of Continuing Application ---- 77
- German Applications ---- 78
- Reissue Applications ---- 72

Public Information ---- 8, 16, 166, 169, 200
Public Law ---- 92–132, 203
Public Service ---- 21, 22, 25–27, 178
Publications, Citation of ---- 171

R

Recording of Instruments ---- 37
References:
- Automatic Furnishing ---- 172–174, 176
- Citation at Allowance ---- 173
- Classification Listed in Patent ---- 177
- Machine Search Service ---- 178

Reissue Application—Foreign Priority ---- 72
Rejections:
- Final Rejection—Time for Response ---- 138, 139
- First Action Final ---- 103

Rejections—Continued

Items

- Mere Function of Machine ---- 102
- Non-Final Second Action ---- 91
- Not Based on Prior Art ---- 87, 99
- Prosecution After Final Rejection ---- 89, 107, 113
- Res Judicata ---- 95

Reopening Prosecution After Board of Appeals Decision ---- 106
Res Judicata ---- 95
Restriction and Election ---- 92, 126, 127, 131, 134, 135
Revival ---- 108, 110
Rule Changes:
- Affidavit as to Test Results ---- 119, 120
- After Final Rejection Practice ---- 113
- Appeal to C.C.P.A. ---- 154

Certificates of Correction (Rules 323, 332) ---- 163
- Conflicting Claims ---- 133
- Defensive Publication Program—Extension ---- 187, 189, 191
- Division—Continuation Program ---- 116
- Drawing Requirements ---- 83
- Extension of Time to File Appeal Brief ---- 151
- Formula and Table Format ---- 71
- Interference Practice ---- 161
- Inventor's Certificate ---- 79
- Legal Journals ---- 207
- Patent Application Petitions ---- 57
- Recognition of Attorneys and Agents, Standard of Conduct ---- 57
- Restriction Practice ---- 134, 135
- Transfer of Regulation (Title 37) ---- 196

S

Search Exchange Program:
- Philippines-U.S. ---- 186
- Swedish-U.S. ---- 193

Search Room ---- 38
Serial Number, Early Notification ---- 30
Service of Court Papers ---- 155
Solicitation of Views ---- 208
Special Treatment of Applications:
- Special Examining Procedure ---- 88, 92, 98
- Applications To Be Taken Up Special ---- 97, 108, 115

Species, Election of ---- 126, 128, 132
Status:
- Inquiries ---- 23
- Of Application Referred to in Patent ---- 1

Streamline Continuation Practice ---- 116

T

Technical Rejections ---- 87, 99
Telephone Practice ---- 125, 126
Testimony, Examiner ---- 153
Time for Response:
- Extensions ---- 136, 137
- Final Rejection ---- 138, 139

Timely Response ---- 140
Trademarks (See Index Before Item 300) ---- 300–334
Transmittal Forms ---- 15, 39

U

U.S. Patent, Effective Date of ---- 74

W

Withdrawal of Attorney ---- 55, 57
Withdrawal of Final Rejection After Notice of Appeal ---- 143

Z

ZIP Codes ---- 5

TRADEMARK SECTION

The following is a compilation of the more important notices and rule changes concerning trademarks which have been published in the OFFICIAL GAZETTE *from July 1, 1964 through December 31, 1972. Notices which have been rescinded are not included. Some notices issued prior to July 1, 1964, which have not been specifically rescinded and are still in effect, are not reproduced here.*

INDEX

	Items
Trademark Notices:	
Actions, Number of Copies	323
Amended Applications, Examining and Reporting Dates	314
Applications, Initial Processing	321
Deposit Accounts, Charges Under Special Conditions	309
Identification of Goods and Services	322
International Classification	306, 307, 308, 322, 331
Interviews	300
"Johnny Horizon" Symbol	325
Manual, Trademark Examining Procedure	315, 327
Official Gazette, Trademark Section	304, 309, 310, 311
Oppositions	301, 302, 312
Powers of Attorney in Registered Files	305
Recording of Documents Affecting Title	313
Special, Petition	328
Specimens, Bulky	332
Status Inquiries	316, 318
Trademark Registration Treaty	334
Trademark Rule Changes:	
Access to Pending Applications	319
Allowance	303
Appeal	330, 333
Application	320, 326
Attorneys, Recognition	317
Certificate of Registration	326
Drawing	320, 326
Filing Date	320
Interferences	324
Inter Partes Procedure	329, 330, 333
Specimens	320
Suspension	326
Patent Notices Also Pertinent to Trademarks (reprinted here for convenience):	
Zip Code Reminder	5
Mailing Address, Patent Office	11
Certified Copies, When Material Not Available	22
Certification Desk	26
Customer Relations Center	27
Accessibility of Assignment Records	35
Deposit Accounts	43, 45, 46, 48
Emergency Situation in the U.S. Postal Service	181–185
Change in Legal Holidays	195
Dept. of Commerce, Organization Chart	212

(300) INTERVIEWS INVOLVING TRADEMARK APPLICATION

Interviews frequently result in a better understanding of the issues involved, shorten the prosecution and facilitate disposal of applications.

Interviews for discussion of registrability of the mark of a pending application will not be had before the first official Office action thereon and ordinarily not before filing the first response. Arrangements for an interview should be made in advance so that the Examiner may review the case and be familiar with the details involved.

Interviews on Friday will no longer be prohibited as a matter of policy but all interviews should be set at a time satisfactory to all parties concerned.

A memorandum summarizing the conclusions reached at the interview should be prepared by the Examiner and placed in the application file. The memorandum will be retained in the application file until the prosecution is completed. Such procedure will not, however, relieve the applicant of the responsibility of complying with the requirements of Trademark Rule 2.62.

HORACE B. FAY, JR.,
July 6, 1964. *Assistant Commissioner.*

This supersedes the notice of February 10, 1958, 728 O.G. (TM 1).

[804 O.G. TM 147]

(301) OPPOSITIONS UNDER SECTION 13 OF THE TRADEMARK ACT OF 1946

Section 13 of the Trademark Act of 1946 provides that any person who believes that he would be damaged by the registration of a mark upon the Principal Register may, upon payment of the required fee, file a verified opposition in the Patent Office, stating the grounds therefor, within thirty days after publication under Section 12(a) of the mark sought to be registered.

An unverified opposition may be filed by a duly authorized attorney, but the opposition will be null and void unless verified by the opposer within a reasonable time after such filing to be fixed by the Commissioner.

An opposition will not be accepted unless it complies with the statutory requirements, namely, it must be filed in the Patent Office within thirty days after publication under Section 12(a) of the mark opposed, be accompanied by a fee in the proper amount, must state the grounds therefor and, if filed by the opposer, must be verified.

A request to extend the time for filing an opposition under Rule 2.102 must be received in the Patent Office before the expiration of thirty days from date of publication under Section 12(a) of the mark sought to be registered. The request should specify the period of extension desired and be accompanied by a showing of good cause for the extension requested, but in the event circumstances do not permit submission of the showing of good cause with the request, it must be furnished within ten days after filing the request for extension.

Two or more parties may be joined in opposition to the registration of a mark, but separate fees for each party so joined must be paid. Likewise, a mark may be opposed in each of a plurality of classes, but a separate fee of $25.00 for each class in which opposition is sought, must accompany the opposition. To be complete, oppositions accompanied by fees insufficient to cover each class named in the application, must specify the particular classes in which opposition is sought.

HORACE B. FAY, JR,
July 15, 1964. *Assistant Commissioner.*

[805 O.G. TM 39]

(302) CHANGE IN FORMAT FOR PUBLISHING TRADEMARKS FOR OPPOSITION

Section 30 of the Trademark Act of 1946 as amended by Public Law 772, 87th Congress, approved October 9, 1962, 76 Stat. 769, provides for the filing of a combined application for the registration of a trademark in more than one class.

The present practice of publishing the mark with pertinent data under each class in which registration is sought results in needless duplication.

Beginning with the issue of November 3, 1964, "Marks Published for Opposition" will be divided into two sections. In Section 1, all marks presented in combined applications for registration in more than one class will be published with only one reproduction of each mark.

The reproduction of the mark will be followed by the class numbers and titles, and under each class will appear the description of the goods in connection with which the trademark is used. If the date of first use applies to all classes, it will appear following the last class; otherwise, the dates of use will appear after each class.

Trademarks presented in applications for registration in a single class will be published, as in the past, in class order, in Section 2.

The same procedure will be followed in the notice of the issuance of registrations on the Supplemental Register.

EDWIN L. REYNOLDS,
Sept. 18, 1964. *First Assistant Commissioner.*

[807 O.G. TM 51]

---

(303) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 2—RULES OF PRACTICE IN TRADEMARK CASES

Allowance of Application

The following amendment is made, to take effect on publication in the Federal Register. Notice and public procedure and deferment of the time of taking effect are deemed unnecessary in view of the nature of the amendment, which is procedural only.

The purpose of the change is to eliminate the procedural step of signing a trademark application file prior to allowance, which has been found to be burdensome and which is unnecessary since the allowance of the application, subject to possible inter partes proceedings, has already been approved by an Examiner having full signatury authority.

Section 2.82 is amended by striking out the clause "the Examiner will sign the application file to indicate allowance and," so that the section as amended will read as follows:

§ 2.82 *Allowance of application.*

If no opposition is filed within the time permitted (§§ 2.101 and 2.102), or if filed and dismissed, and if no interference is declared, or concurrent use proceeding instituted, the application will be prepared for issuance of the certificate of registration as provided in § 2.151.

(Sec. 1, 66 Stat. 793, 35 U.S.C. 6; 60 Stat. 427, 15 U.S.C. 1057)

Dated: Mar. 23, 1966.

EDWARD J. BRENNER,
Commissioner of Patents.

Approved:
J. HERBERT HOLLOMAN,
Assistant Secretary for Science and Technology.

[F.R. Doc. 66-3785; Filed, Apr. 7, 1966; 8:45 a.m.]

Published in 31 F.R. 5554; Apr. 8, 1966

[826 O.G. TM 61]

---

(304) PUBLICATION OF MATERIAL IN "NOTICES" SECTIONS OF PATENTS AND TRADEMARKS OFFICIAL GAZETTE

Effective Jan. 3, 1967, publication of material in the Patent and Trademark "Notices" sections of the OFFICIAL GAZETTE will occur only once.

Dec. 1, 1966.

[833 O.G. TM 108]

---

(305) POWERS OF ATTORNEY IN REGISTERED TRADEMARK FILES

On and after February 1, 1967, communications advising of changes in the powers of attorney for registered trademarks will be placed in the registration files, but will not be acknowledged by the Patent Office. The information will thus be available to those who inspect the files, but since these powers of attorney do not directly concern the Patent Office, acknowledgments are not believed to be necessary.

Jan. 30, 1967.

C. M. WENDT,
Director.

[835 O.G. TM 95]

---

(306) PUBLICATION OF INTERNATIONAL CLASSIFICATION

Beginning with the OFFICIAL GAZETTE of March 5, 1968, the publication of trademarks for opposition under the provisions of section 12(a) of the Trademark Act of 1946, registrations issued on the Supplemental Register and renewals, with the exception of certification and collective membership marks, will include, in addition to the U.S. classification, the International Classification, as follows: (Int. Cl.).

Such published marks, upon issuance as registrations, will also include the International Classification.

In the International Classification of services, Classes 35 to 42, are identical to Classes 100 to 107, respectively, of the U.S. Schedule.

Applicants are requested to include in applications for the registration of trademarks in addition to the U.S. Schedule of classes of goods and services, the International Classification.

EDWIN L. REYNOLDS,
Jan. 5, 1968. *First Assistant Commissioner.*

THE INTERNATIONAL CLASSIFICATION OF GOODS AND SERVICES IS AS FOLLOWS

Goods

1. Chemical products used in industry, science; photography, agriculture, horticulture, forestry; artificial and synthetic resins; plastics in the form of powders, liquids or pastes, for industrial use; manures (natural and artificial); fire extinguishing compositions; tempering substances and chemical preparations for soldering; chemical substances for preserving foodstuffs; tanning substances; adhesive substances uesd in industry.
2. Paints, varnishes, lacquers; preservatives against rust and against deterioration of wood; colouring matters, dyestuffs; mordants; natural resins metals in foil and powder form for painters and decorators.
3. Bleaching preparations and other substances for laundry use; cleaning, polishing, scouring and abrasive preparations; soaps; perfumery, essential oils, cosmetics, hair lotions dentifrices.
4. Industrial oils and greases (other than edible oils and fats and essential oils) lubricants; dust laying and absorbing compositions fuels (including motor spirit) and illuminants candles, tapers, night-lights and wicks.
5. Pharmaceutical veterinary and sanitary substances; infants' and invalids' foods; plasters, material for bandaging material for stopping teeth, dental wax disinfectants; preparations for killing weeds and destroying vermin.
6. Unwrought and partly wrought common metals and their alloys; anchors, anvils, bells, rolled and cast building materials; rails and other metallic materials for railway tracks; chains (except driving chains for vehicles); cables and wires (non-electric); locksmiths' work; metallic pipes and tubes; safes and cash boxes; steel balls; horseshoes; nails and screws; other goods in non-precious metal not included in other classes; ores.
7. Machines and machine tools; motors (except for land vehicles); machine couplings and belting (except for land vehicles); large size agricultural implements; incubators.
8. Hand tools and instruments; cutlery, forks and spoons; side arms.
9. Scientific, nautical, surveying and electrical apparatus and instruments (including wireless), photographic, cinematographic, optical, weighing, measuring, signalling, checking (supervision), life-saving and teaching

apparatus and instruments; coin or counter-freed apparatus; talking machines; cash registers; calculating machines; fire-extinguishing apparatus.

10. Surgical, medical, dental and veterinary instruments and apparatus (including artificial limbs, eyes and teeth).
11. Installations for lighting, heating, steam generating, cooking, refrigerating, drying, ventilating, water supply and sanitary purposes.
12. Vehicles; apparatus for locomotion by land, air or water.
13. Firearms: ammunition and projectiles; explosive substances; fireworks.
14. Precious metals and their alloys and goods in precious metals or coated therewith (except cutlery, forks and spoons); jewellery, precious stones, horological and other chronometric instruments.
15. Musical instruments (other than talking machines and wireless apparatus).
16. Paper and paper articles, cardboard and cardboard articles; printed matter, newspapers and periodicals, books; book-binding material; photographs; stationery, adhesive materials (stationery); artists' materials; paint brushes; typewriters and office requisites (other than furniture); instructional and teaching material (other than apparatus); playing cards; printers' type and cliches (stereotype).
17. Gutta percha, indiarubber, balata and substitutes, articles made from these substances and not included in other classes; plastics in the form of sheets, blocks and rods, being for use in manufacture; materials for packing, stopping or insulating; asbestos, mica and their products; hose pipes (non-metallic).
18. Leather and imitations of leather, and articles made from these materials and not included in other classes; skins, hides; trunks and travelling bags; umbrellas, parasols and walking sticks; whips, harness and saddlery.
19. Building materials, natural and artificial stone, cement, lime, mortar, plaster and gravel; pipes of earthenware or cement; roadmaking materials; asphalt, pitch and bitumin; portable buildings; stone monuments; chimney pots.
20. Furniture, mirrors, picture frames; articles (not included in other classes) of wood, cork, reeds, cane, wicker, horn bone, ivory, whalebone, shell, amber, mother-of-pearl, meerschaum, celluloid, substitutes for all these materials, or of plastics.
21. Small domestic utensils and containere (not of precious metal or coated therewith); combs and sponges; brushes (other than paint brushes); brush-making materials; instruments and material for cleaning purposes; steel-wool; glassware, porcelain and earthenware, not included in other classes.
22. Ropes, string, nets, tents, awnings, tarpaulins, sails, sacks; padding and stuffing materials (hair, capoc, feathers, seaweed, etc.); raw fibrous textile materials.
23. Yarns, threads.
24. Tissues (piece goods); bed and table covers; textile articles not included in other classes.
25. Clothing, including boots, shoes and slippers.
26. Lace and embroidery, ribands and braid; buttons, press buttons, hooks and eyes, pins and needles; artificial flowers.
27. Carpets, rugs, mats and matting; linoleums and other materials for covering floors; wall hangings (non-textile).
28. Games and playthings; gymnastic and sporting articles (except clothing); ornaments and decorations for Christmas trees.
29. Meat, fish, poultry and game; meat extracts; preserved, dried and cooked fruits and vegetables; jellies, jams; eggs, milk and other dairy products; edible oils and fats; preserves, pickles.
30. Coffee, tea, cocoa, sugar, rice, tapioca, sago, coffee substitutes; flour, and preparations made from cereals; bread, biscuits, cakes, pastry and confectionery, ices; honey, treacle; yeast, baking-powder; salt, mustard; pepper, vinegar, sauces, spices; ice.
31. Agricultural, horicultural and forestry products and grains not included in other classes; living animals; fresh fruits and vegetables; seeds; live plants and flowers; foodstuffs for animals, malt.
32. Beer, ale and porter; mineral and aerated waters and other non-alcoholic drinks; syrups and other preparations for making beverages.
33. Wines, spirits and liqueurs.
34. Tobacco, raw or manufactured; smokers' articles; matches.

Services

35. Advertising and business.
36. Insurance and financial.
37. Construction and repair.
38. Communication.
39. Transportation and storage.
40. Material treatment.
41. Education and entertainment.
42. Miscellaneous.

The English Edition of the alphabetical list of the International Classification of Goods and Services to which trademarks are applied may be obtained from the British Office at 10 shillings ($1.20) per copy which includes postage by seamail.

Orders may be sent to:

Sale Branch, The Patent Office
Block C, Station Square House
St. Mary Cray, Orpington, Kent, England

Payment for the publication may be made by money order or check payable to the Comptroller-General, Patent Office.

[846 O.G. TM 183–184]

---

(307) PURCHASE OF COPIES OF INTERNATIONAL CLASSIFICATION OF TRADEMARKS AND SUPPLEMENT

In the notice entitled "Publication of International Classification" appearing in the OFFICIAL GAZETTE of January 30, 1968 (846 O.G. T.M. 184) announcing the availability of the English edition of the "International Classification of Goods and Services to Which Trademarks Are Applied," at the British Patent Office at 10 shillings ($1.20) per copy, it was stated that payment may be made by money order or check payable to the Comptroller-General Patent Office.

Certain modifications and additions to the Classification were made at the Geneva meeting in April 1967 of the Committee of Experts set up under the Nice Agreement. The English version of these amendments was published as a Supplement to the British Trade Mark Journal of November 15, 1967 and is available from the British Office at one shilling (12¢) per copy which includes postage by surface mail.

We are advised by the British Patent Office that most orders for the first mentioned publication have been accompanied by checks for $1.20 but such checks, upon conversion to Sterling (after deduction of bank charges) leaves a balance of only eight shillings and five pence. Accordingly, the British Patent Office has had to write for the balance.

The British Patent Office advises that the best methods of payment are (*a*) by International Money Order or (*b*) by Bankers' draft payable in Sterling and drawn on a British bank.

In either of these cases the British Patent Office would receive 10 shillings and there would be no delay in filling orders.

If a check is sent for the International Classification it should be for $1.45. Persons desiring the Supplement should send one shilling by method (*a*) or (*b*), or alternatively, 15 cents.

Orders, as indicated in the original Notice, may be sent to:

Sale Branch, The Patent Office
Block C, Station Square House
St. Mary Cray, Orpington, Kent, England

EDWIN L. REYNOLDS,
First Assistant Commissioner.

Apr. 18, 1968.

[850 O.G. TM 111]

---

(308) TRADEMARK RULES OF PRACTICE

[37 CFR Part 6]

Classification of Goods and Services

On February 12, 1969, notice of proposed rule making regarding the revision of § 6.1 of Title 37, Code of Federal Reg-

ulations, relating to the classification of goods and services under the Trademark Act (15 U.S.C. 1112), was published in the Federal Register (34 F.R. 2052) (860 O.G. TM 1).

The proposed change would have established the "International Classification of Goods and Services to which Trademarks are Applied" (the subject of the "Agreement of Nice concerning the international classification of goods and services to which trademarks are applied. Done at Nice, on June 15, 1957" (550 U.N.T.S. 45), as revised at Stockholm, on July 14, 1967) as the primary and sole classification of goods and services for registration of trademarks and service marks beginning on July 1, 1969.

Notice is hereby given that, pending the completion of further studies, the proposed change will not take effect on July 1, 1969, as was previously announced.

The Patent Office will continue to mark all published applications and registrations with the appropriate international class as a subsidiary classification under the program which was started on March 5, 1968.

WILLIAM E. SCHUYLER, JR.,
Dated: June 6, 1969. *Commissioner of Patents.*
Approved:
MYRON TRIBUS,
Assistant Secretary for Science and Technology.

[F.R. Doc. 69-6830; Filed, June 9, 1969; 8:49 a.m.]

Published in 34 F.R. 9124, June 10, 1969

[864 O.G. TM 53]

---

(309) CHARGES AGAINST DEPOSIT ACCOUNTS UNDER SPECIAL CONDITIONS

The practice as to deposit accounts is hereby extended to include charges against deposit accounts under special conditions. Charges under this practice shall not exceed $50 for each trademark application, registration or notice of opposition.

The Director and the Assistant to the Director of the Trademark Examining Operation are authorized to make a charge against a deposit account provided prior approval, as by telephone, is obtained from the applicant, registrant, attorney or agent. This practice is limited to ex parte appeals to the Trademark Trial and Appeal Board, notices of opposition, affidavits under the provisions of Section 8, and applications for renewal and may be exercised only in emergency situations, such as where a party is unable to file the fee within the statutory period.

When such a charge is made, prior approval will be indicated in the file by identification of the name of the authorizing party, the date and the type of authorization, the purpose for which the charge is made, and the deposit account number.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

[879 O.G. TM 151 (Oct. 27, 1970)]

---

(310) SEPARATION OF THE PATENT AND TRADEMARK SECTIONS OF THE OFFICIAL GAZETTE

Effective February 2, 1971, the OFFICIAL GAZETTE will be separated into two parts to be known as the *Patent Official Gazette* and the *Trademark Official Gazette*. The subscription prices for these publications are as follows:

Patent Official Gazette:
$89.00 per year
22.25 additional for foreign mailing
2.00 per single copy
Trademark Official Gazette:
$17.00 per year
4.25 additional for foreign mailing
.40 per single copy

Also effective February 2, 1971, the OFFICIAL GAZETTE will no longer contain "Decisions in Patent and Trademark Cases." Decisions of the type heretofore found in the "Decisions in Patent and Trademark Cases" are published by non-Federal organizations such as, for example, the Bureau of National Affairs, Inc., 1231 25th St. NW., Washington, D.C. 20037, and West Publishing Co., 50 Kellogg Blvd., St. Paul, Minn. 55102.

Finally, the "Decisions Leaflet" of the OFFICIAL GAZETTE will no longer be supplied as a separate subscription item after January 26, 1971. According to present plans, however, both the PATENT OFFICIAL GAZETTE and the TRADEMARK OFFICIAL GAZETTE will have identical "Patent Office Notices" sections containing notices of the various types heretofore published in the Gazette decision leaflet and Trademark Section. Those notices of particular interest to Patent Office employees will be accumulated and published approximately every fourth week, and distributed separately to employees.

WILLIAM E. SCHUYLER, JR.,
Dec. 29, 1970. *Commissioner of Patents.*

[882 O.G. TM 33]

---

(311) PREFACE TO THE TRADEMARK O.G. NOTICES

In September 1970, a Public Advisory Committee for Trademark Affairs was established by the Secretary of Commerce. The Purpose of this Committee was to advise the Patent Office on ways to increase the efficiency and effectiveness of the administration of the Trademark Act. A report of this Advisory Committee has been received by the Commissioner of Patents. After reviewing the recommendations, although the review is not complete, it has been decided to make certain changes in trademark practice and procedure, and to propose changes in the rules of practice. Beginning with this issue of the OFFICIAL GAZETTE and in subsequent issues as needed, announcements will be published concerning changes in procedures and proposed amendments to the Trademark Rules of Practice.

* * * * *

WILLIAM E. SCHUYLER, JR.,
June 16, 1971. *Commissioner of Patents.*

Published in 36 F.R. 13232; July 16, 1971

[889 O.G. TM 2]

---

(312) REQUEST FOR EXTENSION OF TIME IN WHICH TO OPPOSE

The Patent Office is adopting a new procedure to be used when filing a request for an extension of time in which to oppose under Section 13 of the Trademark Act and Rule 2.102, Trademark Rules of Practice. All requests for extension of time should be submitted in triplicate. The Patent Office will stamp each copy of the request with the action taken and send a copy to the requester and the applicant. The third copy will be entered in the file.

The purpose of this new procedure is to expedite the handling of extensions of time by eliminating the preparation of a formal notice of the disposition of the request. Further, this procedure will provide the applicant with additional information concerning the potential opposition.

WILLIAM E. SCHUYLER, JR.,
June 16, 1971. *Commissioner of Patents.*

Published in 36 F.R. 13232; July 16, 1971

[889 O.G. TM 3]

---

(313) RECORDING OF DOCUMENTS AFFECTING TITLE

The Patent Office is liberalizing its policy concerning the recording of documents, other than assignments, which affect title to trademark registrations and applications. Under Rule 2.185 of the Trademark Rules of Practice, instruments affecting title to a trademark registration or application, and licenses of trademarks which are the subject of trademark registrations or applications, will be recorded even though the recording thereof may not serve as constructive notice under Section 10 of the Trademark Act of 1946, as amended (15 U.S.C. 1060).

WILLIAM E. SCHUYLER, JR.,
June 16, 1971. *Commissioner of Patents.*

Published in 36 F.R. 13231; July 16, 1971

[889 O.G. TM 2]

(314) TRADEMARK EXAMINING PROCEDURE FOR AMENDED APPLICATIONS; REPORTING OLDEST DATES OF AMENDED TRADEMARK APPLICATIONS

Effective immediately, the order in which amendments to trademark applications are examined is changed. Previously, Examiners have usually acted on amended cases in order of filing date of the application which the amendment concerned, i.e., amended cases with the oldest filing date were examined first. Under the new procedure, amended cases will normally be examined in the order in which the amendment or other response is received, i.e., amendments that are received first will normally be examined first.

Effective with this issue of the OFFICIAL GAZETTE (Trademark Section) in order to reflect more accurately the condition of division dockets, the column reporting the date of the oldest amended application in each division has been changed to indicate the date of receipt of the oldest filed amendment. Under this new method of reporting the oldest date of receipt of a filed amendment upon which no action has been taken by an Examiner will be indicated for each division of the Trademark Examining Operation.

RENE D. TEGTMEYER,
July 15, 1971. *Assistant Commissioner.*

[889 O.G. TM 6]

(315) ESTABLISHMENT OF MANUAL OF TRADEMARK EXAMINING PROCEDURE

Preliminary work has begun on the preparation of a Manual of Trademark Examining Procedure.

Directives on trademark examining procedure will be issued by the Patent Office from time to time and, when appropriate, will be included in the Manual at a later date. The directives will be numbered sequentially and those issued prior to publication of the Manual will be designated as Series 1. These directives will constitute the guidelines for the examination of trademark applications.

Trademark Examining Directives are available through the Superintendent of Documents, Washington, D.C., 20013 at an annual subscription of $1.50 plus 50¢ for foreign mailing.

ROBERT GOTTSCHALK,
July 27, 1971. *Acting Commissioner of Patents.*

[889 O.G. TM 226]

(316) TRADEMARKS—STATUS INQUIRIES

In order to expedite the handling of inquiries regarding the status of both new and amended applications, the Patent Office has adopted a new procedure. Henceforth, status inquiries should be filed in duplicate and should identify by title and date the last paper known by the applicant to have been filed to the case. Each inquiry should be accompanied by a self-addressed, stamped envelope. The original inquiry will be entered in the file and the duplicate will be marked with a response and returned to the applicant. The date when the next office action can be expected will not be given unless specifically requested.

Status letters have been used by applicants to establish diligence in support of a later petition to revive should the application become abandoned. Under current practice, attorneys have frequently submitted status letters as a matter of course for such purposes. This has proved burdensome both to attorneys and the Patent Office. Until further notice, in new applications, the applicant will be considered to have exercised diligence in connection with a petition to revive an application abandoned for failure to respond to the initial office action if inquiry as to the status of the application is received by the Patent Office within either one of the two following periods, whichever expires later:

a. Eighteen months from the filing date of the application, or

b. A reasonable period after the OFFICIAL GAZETTE (Trademarks) indicates that the filing date of the oldest new case awaiting action in the Division to which the application is assigned is more recent than the filing date of the application.

For amended cases, the applicant will be considered to have exercised diligence if inquiries as to the status of the application are received by the Patent Office within either one of the two following periods, whichever expires later:

a. Eighteen months after filing a response to the examiner's last received action, or

b. A reasonable period after the OFFICIAL GAZETTE (Trademarks) indicates that the date of the oldest amendment filed that is awaiting action in the Division to which the application is assigned is more recent than the date of filing the last amendment to the application.

It should be noted as an exception to the above that status inquiries are totally unnecessary during period(s) of time when an application is suspended pursuant to 37 CFR 2.67.

Applicants are urged not to file status inquires within the first year after filing due to the current backlog of new applications.

Dated: July 28, 1971.

ROBERT GOTTSCHALK,
Acting Commissioner of Patents.

Approved: July 30, 1971.
JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

[FR Doc. 71-11532; Filed 8-10-71; 8:48 am]

Published in 36 F.R. 14771, Aug. 11, 1971

[890 O.G. TM 5]

(317) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER 1—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 1—RULES OF PRACTICE IN PATENT CASES

PART 2—RULES OF PRACTICE IN TRADEMARK CASES

Recognition of Attorneys and Agents, Standards of Conduct, and Patent Application Petitions

These rules changes eliminate present provision for the recognition and registration of firms of attorneys and agents for practice in patent and trademark cases, and permit registered attorneys and agents to file papers in patent applications without the need for filing powers of attorney or authorizations. The changes further establish the Code of Professional Responsibility of the American Bar Association as the standard of conduct for those practicing before the Patent Office insofar as the Code is not inconsistent with Patent Office rules. Other changes eliminate the present requirement for a petition or other express request for a patent and liberalize requirements as to inventor names.

The changes relating to the discontinuance of the recognition and registration of firms are intended to obviate problems incident to such registration such as, for example, the lack of certainty as to the responsibility of individual attorneys and agents for actions taken by registered nonpartnership business entities, such as professional corporations, the problems associated with the rights to firm names and registration numbers upon dissolution or reorganization of firms, and the recognition as "firms" of groups of attorneys or agents, such as parts of corporation organizations, when the attorneys and agents are not in fact associated as partners. Acceptance of papers filed in patent applications by registered attorneys and agents upon a representation that the attorney or agent is authorized to act in a representative capacity is for the purpose of facilitating responses on behalf of applicants in patent applications, and, further, to obviate the need for filing powers of attorney or authorizations of agent in individual applications when there has been a change in composition of law firms or corporate patent staffs. Interviews with a registered attorney or agent not of record will, in view of 35 U.S.C. section 122, be conducted only on the basis of information and files supplied by the attorney or agent.

Provision is made for an applicant to supply an address to receive correspondence from the Patent Office concerning his application, in addition to his residence address, so that the Patent Office may direct mail to any address of applicant's selection, such as a corporate patent department, a firm of attorneys or agents, or an individual attorney, agent, or other person. In connection with patent applications pending upon the effective date of the changes in which a firm is the only representative of record (and in connection with divisions and continuations thereof not requiring execution by

the applicant), the address of the firm will be considered to be the correspondence address for the application. Powers of attorney and authorizations of agent in favor of registered individual attorneys and agents will, of course, continue to be recognized and accepted.

The amendments to §§ 1.344 and 2.13 are intended to provide a more definite and uniform standard of conduct for those engaged in practice before the Patent Office than do present rules. The Code of Professional Responsibility of the American Bar Association is incorporated by reference in the rule with a statement as to where copies thereof may be inspected or obtained. The rule specifies that the standards referred to are those set forth in the Code of Professional Responsibility as amended February 24, 1970, and the rule does not, therefore, refer to standards imposed by later amendments of the Code. Any standards in other Patent Office rules which are inconsistent with standards imposed by the Code (as, for example, the limitations in § 1.345(b) on the distribution of professional announcements and the duties imposed by § 1.205(b)) remain in force.

The elimination of the requirement for a petition requesting the grant of a patent and the relaxation of requirements as to the names of applicants are intended to simplify patent application procedures. Section 1.76 is being revoked as redundant in view of revisions in § 1.57.

Notice of proposed rule making regarding revocation of §§ 1.35 and 1.61 and revision of §§ 1.14, 1.21, 1.33, 1.34, 1.36, 1.51, 1.52, 1.57, 1.76, 1.341, 1.343, 1.344, 1.346, 1.347, 2.13, and 2.15 of Title 37, Code of Federal Regulations was published in the Federal Register of January 15, 1971 (36 F.R. 611). Interested persons were given an opportunity to participate in the rulemaking process through submission of comments in writing and at an oral hearing held on March 23, 1971. The rules are being adopted after full and careful consideration of all the material submitted. The departures from the published text reflect certain of the views expressed in the submitted material.

Effective date. This revision shall become effective on the date of its publication in the Federal Register (7–2–71).

In consideration of the comments received and pursuant to the authority contained in Section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), and Section 31 of that Act (66 Stat. 795; 35 U.S.C. 31), Title 37 of the Code of Federal Regulations is hereby amended as follows:

* * * * *

18. Section 2.13 is revised to read as follows:

§ 2.13 *Professional conduct.*

Attorneys and other persons appearing before the Patent Office in trademark cases must conform to the standards of ethical and professional conduct set forth in the Code of Professional Responsibility of the American Bar Association as amended February 24, 1970, insofar as such code is not inconsistent with this part. A copy of the said code is available for inspection in the Office of the Solicitor, U.S. Patent Office, Room 11C04, Building 3, Crystal Plaza, 2021 Jefferson Davis Highway, Arlington, Va. Copies of the code are available upon request to the American Bar Center, 1155 East 60th Street, Chicago, Ill. 60637.

19. Section 2.15 is revised to read as follows:

§ 2.15 *Signature and certificate of attorney or agent.*

Every paper filed by an attorney at law or other person representing an applicant or party to a proceeding in the Patent Office must bear the signature of such attorney at law or other person except those papers which are required to be signed by the applicant or party. The signature of an attorney at law or such other person to a paper filed by him, or the filing of any paper by him, constitutes a certificate that the paper has been read; that its filing is authorized; that to the best of his knowledge, information, and belief there is good ground to support it; and that it is not interposed for delay.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Approved:

JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

[FR Doc. 71–9387; Filed 7–1–71; 8:49 am]

Published in 36 F.R. 12616; July 2, 1971

[890 O.G. TM 60 (Sept. 14, 1971)]

(318) STATUS INQUIRES; AMENDMENT

The notice entitled Status Inquiries which appeared in the Federal Register of August 11, 1971 (36 F.R. 14771–14772), indicated that all status inquiries regarding trademark applications will be entered in the application files. That procedure will not, however, be followed in all cases, and the first paragraph of the notice has, accordingly, been amended to read as follows:

"In order to expedite the handling of inquiries regarding the status of both new and amended applications, the Patent Office has adopted a new procedure. Henceforth, status inquiries should be filed in duplicate and should identify by title and date the last paper known by the applicant to have been filed in the case. Each inquiry should be accompanied by a self-addressed, stamped envelope. Both the original inquiry and the duplicate will be marked with a response and the duplicate will be returned to the applicant. The original inquiry will be entered in the file only if the applicant has requested an estimated date for the next Office action; otherwise, the original inquiry will be placed in a separate file."

Dated: Sept. 14, 1971.

ROBERT GOTTSCHALK,
Acting Commissioner of Patents.

[FR Doc. 71–14129; Filed 9–23–71; 8:50 a.m.]

Pub. in 36 F.R. 18961, Sept. 24, 1971

[891 O.G. TM 142]

---

(319) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 2—RULES OF PRACTICE IN TRADEMARK CASES

Access to Pending Applications

A proposal was published at 36 F.R. 16194 to amend § 2.27 by deleting the requirement to show good cause in order to obtain access to a pending application file.

After consideration of all comments and suggestions submitted by interested persons, the amendment as proposed is hereby adopted, subject to the following changes:

1. The title of § 2.27 is changed by inserting the word "trademark" after the word "pending."

2. In paragraph (b) of § 2.27 the word "trademark" after the word "pending" is deleted.

Access to a pending application will be granted upon oral request at the office of the Director of the Trademark Examining Operation. The files will be ordered at 2 p.m. each day and will usually be available for inspection by 3 p.m. the same day. Files must be inspected in the presence of office personnel and papers may not be removed without authorization. Copies of the contents of files may be made only in the Trademark Search Room or by the Document Service Branch. Written requests for copies of the contents of application files may be addressed to the Document Service Branch; the cost is 30 cents per page.

The procedure for access to published and registered files and terminated inter partes proceedings will remain unchanged. Access to a published application is granted by request in the Trademark Docket Section. In order to obtain access to a registered file or terminated inter partes proceeding, an order must be placed in the Trademark Docket Section. These files are available either the same day or the morning of the following day.

Effective date. This amendment is effective on the date of its publication in the Federal Register (12–31–71).

ROBERT GOTTSCHALK,
Acting Commissioner of Patents.

December 21, 1971.

JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

December 22, 1971.

The text of the revised section is as follows:

§ 2.27 *Pending trademark application index; access to applications.*

(a) An index of pending applications including the name and address of the applicant, a reproduction or description

of the mark, the goods or services with which the mark is used, the class number, the dates of use and the serial number and filing date of the application will be available for public inspection as soon as practicable after filing.

(b) Access to the file of a particular pending application will be permitted prior to publication under § 2.81 upon written request.

(c) Decisions of the Commissioner and the Trademark Trial and Appeal Board in applications and proceedings relating thereto are published or available for inspection or publication.

(d) After a mark has been registered, or published for opposition, the file of the application and all proceedings relating thereto are available for public inspection and copies of the papers may be furnished upon paying the fee therefor.

[F.R. Doc. 71-19801; Filed 12-30-71; 8:45 a.m.]

Published in F.R. 24506, Dec. 31, 1971

[895 O.G. TM 2]

---

(320) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 2—RULES OF PRACTICE IN TRADEMARK CASES

Trademark Application and Drawing Requirements

A proposal was published at 36 F.R. 18002 to amend and revise §§ 2.21–2.23, 2.52, and 2.56. Pursuant to this notice, a number of comments have been received from interested persons. In light of the comments submitted, some changes have been made in the rules as proposed.

An additional subparagraph has been added to § 2.21 requiring that the application state the name of the applicant. In the same section, a paragraph (c) has been added. This paragraph incorporates the substances of proposed § 2.22. Section 2.52 has been revised to state that drawings must be 8 to 8½ inches wide and 11 inches long. In view of the change in § 2.52, § 2.31 has also been revised to make it clear that applications submitted on either letter or legal-size paper are acceptable.

Effective date. This revision shall become effective on *February 1, 1972*. However, as to § 2.52, drawings which comply only with the existing rule will be accepted until March 1, 1972.

1. Section 2.21 is revised to read as follows:

§ 2.21 *Requirements for receiving a filing date.*

(a) Materials submitted as an application for registration of a mark will not be accorded a filing date as an application until all of the following elements are received:

(1) Name of the applicant;

(2) A name and address to which communications can be directed;

(3) A drawing or other identification of the mark sought to be registered;

(4) An identification of goods or services;

(5) At least one specimen or facsimile of the mark as actually used;

(6) A date of first use of the mark in commerce, or a certification or certified copy of a foreign registration if the application is based on such foreign registration pursuant to section 44(e) of the act, or a claim of the benefit of a prior foreign application in accordance with section 44(d) of the act;

(7) The required filing fee for at least one class of goods or services.

Compliance with one or more of the rules relating to the elements specified above may be required before the application is further processed.

(b) The filing date of the application is the date on which all of the elements set forth in paragraph (a) of this section are received in the Patent Office.

(c) If the papers are so defective that they cannot be accepted, the applicant will be notified and the papers and fee held 6 months. If the requirements for receiving a filing date have not been satisfied within such time, the papers and fee will be returned to the applicant or otherwise disposed of; the drawing or fee of an unaccepted application may be transferred to a later application.

§ 2.22 [*Revoked*]

2. Section 2.22 is revoked.

3. Section 2.23 is revised to read as follows:

§ 2.23 *Serial number.*

Applications will be given a serial number as received, and the applicant will be informed of the serial number and the filing date of the application.

4. Section 2.31 is revised to read as follows:

§ 2.31 *Application must be in English.*

The application must be in the English language and plainly written on but one side of the paper. It is deemed preferable that the application be on legal or letter-size paper, typewritten double spaced, with at least a one and one-half inch margin on the left-hand side and top of the page.

5. Section 2.52 is amended by revising paragraph (c) to read as follows:

§ 2.52 *Requirements for drawings.*

* * * * *

(c) *Size of paper and margins.* The size of the sheet on which a drawing is made must be 8 to 8½ inches wide and 11 inches long. One of the shorter sides of the sheet should be regarded as its top. When the figure is longer than the width of the sheet, the sheet should be turned on its side with the top at the right. The size of the mark must be such as to leave a margin of at least 1 inch on the sides and bottom of the paper and at least 1 inch between it and the heading.

* * * * *

6. Section 2.56 is revised to read as follows:

§ 2.56 *Specimens.*

The application must include five specimens of the trademark as actually used on or in connection with the goods in commerce. The specimens shall be duplicates of the actual used labels, tags, or containers, or the displays associated therewith or portions thereof, when made of suitable flat material and of a size not to exceed 8½ inches wide and 13 inches long.

Dated: January 11, 1972.

RICHARD A. WAHL,
Acting Commissioner of Patents.

Approved:

JAMES H. WAKELIN, JR.,
Assistant Secretary
for Science and Technology.

[FR Doc. 72-924; Filed 1-20-72; 8:48 am]

Published in 37 FR 931; Jan. 21, 1972

[895 O.G. TM 193]

---

(321) INITIAL PROCESSING OF APPLICATIONS

On February 1, 1972, the operations of the Trademark Application Section of the Patent Office will be reorganized. The purpose of the reorganization is to provide the public and applicants with more current information concerning newly filed applications.

The prompt initial processing of trademark applications is necessary in order to fulfill one of the main Patent Office functions, that of producing a record, accessible to the public, of new trademark activity to facilitate the clearance of new marks for use, determine the registrability of proposed marks, and avoid conflicts with the rights of others. In order to maintain a record of marks applied for which reflects the most current information available to the Office concerning them, the early processing of drawings in order to have them placed in the search room is considered as a first priority. The processing of these drawings includes the assignment of serial numbers, initial classification, duplication of the drawing and the forwarding of copies of the drawing to the search room. Other functions which are necessary in the processing of applications, such as the processing and mailing of filing receipts, are secondary to the processing of drawings.

In past years, there have been delays in processing applications and forwarding application drawings to the search room.

These delays have varied from several weeks to several months. In view of the importance, both to applicants and the public, of recording essential information concerning newly filed applications as quickly as possible, a reorganization of the workflow in the Application Section is being effected.

There is no change in the processing of applications through the mail room and finance branch to the Application Section. However, under the new plan, upon receipt in the Trademark Application Section, all applications will be stamped with a serial number, and the drawing of the mark will be reproduced immediately and placed in the search file. This processing will occur as soon as the application files reach the Application Section. Such procedures as determining whether or not an application will receive a filing date, preparation of the file jackets, and mailing of the filing receipt will take place at a later time.

Applicants who wish to be notified promptly of the date their papers were received in the office and their serial number, may send two self-addressed postcards with their application papers. The mail room will stamp both postcards with the date of receipt and return one to the applicant; the second postcard will be stamped with the serial number and forwarded to the applicant from the Application Section. The postcards should contain the applicant's name and the trademark which is the subject of the application. When more than one set of application papers are forwarded under one cover, postcards should be attached to each set of papers for which a receipt is desired.

Under the new system of processing application papers, your particular attention is directed to the following changes as compared to the present procedure.

1. Application drawings will be placed in the public search file prior to the mailing of the filing receipt.

2. By using the postcard system described above, applicants will be notified sooner of the date of receipt of their papers and the serial number of their application. Applicants are encouraged to use the postcard system.

3. Additional papers sent in by the applicant or attorney should be identified by serial number, thereby enabling the office to process these papers quickly.

4. When an application is accompanied by a petition to the Commissioner under § 2.146, the petition will not be considered until processing by the Application Section is complete.

Effective date. The procedure outlined in this notice will become effective February 1, 1972.

RICHARD A. WAHL,
Acting Commissioner of Patents.

January 11, 1972.

Approved:

JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

[FR Doc. 72-925; Filed 1-20-72; 8:48 am]

Published in 37 FR 942; Jan. 21, 1972

[895 O.G. TM 193]

---

(322) IDENTIFICATION OF GOODS AND SERVICES IN TRADEMARK APPLICATIONS—(REPRINT OF NOTICE AND AMENDMENT)

Effective immediately, the Alphabetical List of Goods and Services which appears in the volume entitled "International Classification of Goods and Services to Which Trade Marks Are Applied" (published by the World Intellectual Property Organization (WIPO)) is adopted as a general guideline for determining the degree of particularity of identification of goods and services required in trademark applications.

Terms which appear in the International Classification listing will generally be accepted as proper identifications of goods and services. The use in the listing of more specific identifications indented below the heading term does not necessarily preclude acceptability of that heading. For example, the International Classification lists, as Item A407, *Ammunition,* followed by specific types of ammunition, as Items A408 and A409 and A410. "Ammunition" will be accepted as an identification in accordance with *In re Dynamit Nobel AG,* 169 USPQ 499 (TTAB, 1971). However, if the more specific term is used whenever appropriate, prosecution of the application may be shortened since the possibility of a requirement of greater particularity (see below) is reduced.

Greater particularity than is set forth by the terms in the International Classification listing may not be required by the Examiner in the absence of a clear need therefor. Typical illustrations of clear need can be found in the following situations:

(1) The broad term includes items which are classified in more than one class. (For example, "artists' materials.")

(2) The broad term is too indefinite for proper examination. (For example, "metallic parts.")

(3) (*a*) The identification is inconsistent with the goods or services disclosed by the specimens.

(*b*) The ordinary meaning of the identification is at variance with the goods or services disclosed by the specimens or the record. (For example, "decalcomanias" are not adequately identified by the term "publications." See also *Ex parte Consulting Publishing Co.,* 115 USPQ 240.)

(4) Wording included in the mark requires limitation of the identification. (For example, "beer" may not be included in the identification where the mark is "Newark 'Olde Town' Ale" (*Ex parte Consumers Brewing Co.,* 55 USPQ 426).)

On the other hand, some situations do *not* constitute clear need, as illustrated by the following:

(1) The existence of a decision holding that a likelihood of confusion exists in relation to items which are narrowly identified does not in itself constitute a clear need to require amendment of a broad identification to the more specific items mentioned in the decision.

(2) If the identification is understood when read in association with the title of the class in which it is placed and is otherwise satisfactory, further qualifying amendment should not be required. (For example, "mufflers" in the clothing class would not require further modification to indicate that articles of clothing are intended; similarly the term "house organ" in the class for printed publications would not need further qualification.)

In a few instances, the terminology in the International Classification of Goods and Services is not in common usage in the United States. Where this occurs, the term more commonly used in this country should be selected.

The English edition of the "International Classification of Goods and Services to Which Trade Marks Are Applied" can be ordered from:

Sales Branch, The Patent Office
Block C, Station Square House
St. Mary Cray, Orpington, Kent, England

Certain modifications and additions to the Classification have been published as supplements and are also available from the British Office.

We have been advised by the British Patent Office that the only acceptable methods of payment are by International Money Order or banker's draft, payable in sterling and drawn on a bank in the United Kingdom. Orders for the International Classification and for the supplements can be made by remittance in the following amount(s):

International Classification	50 pence
Nov. 15, 1967, supplement	5 pence
Mar. 18, 1970, supplement	Free
Mar. 3, 1971, supplement	10 pence
Total cost (including postage by surface mail)	65 pence
Additional charge for postage by air mail	1 pound 55 pence
Total cost by airmail	2 pounds 20 pence

Orders should be sent directly to:

Sales Branch, The Patent Office, Block C.
Station Square House, St. Mary Cray,
Orpington, Kent, England

RENE D. TEGTMEYER,
Assistant Commissioner for Appeals, Legislation and Trademarks.

Date: Jan. 13, 1972.

[895 O.G. TM 54]

(323) TRADEMARK OFFICE ACTIONS

Effective Apr. 1, 1972, trademark applicants or their attorneys will be provided with only one carbon copy of any office action, and the mailing of an additional carbon copy will be discontinued.

This change is consistent with the current practice in the patent examining operations and should result in greater efficiency in the preparation and mailing of office actions.

ROBERT GOTTSCHALK,
Feb. 7, 1972. *Commissioner of Patents.*

[895 O.G. TM 238]

(324) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 2—RULES OF PRACTICE IN TRADEMARK CASES

Interferences

A proposal was published at 36 F.R. 18002 to amend, revise, or redesignate §§ 2.27, 2.61, 2.80–2.82, 2.91, 2.92, 2.98, 2.101, and 2.103. Pursuant to this notice, a number of comments have been received from interested persons, and due consideration has been given to all matter presented. Only editorial changes have been made in the rules as proposed.

Effective date. This revision shall become effective on March 1, 1972, and will apply to all applications except those in which a notice of publication was mailed prior to March 1, 1972.

§ 2.27 [*Amended*]

1. Section 2.27 is amended by changing "2.81" in paragraph (b) to read "2.80."

§ 2.61 [*Amended*]

2. Section 2.92(c) is redesignated as § 2.61(c).

3. Section 2.81 is redesignated as § 2.80 and revised to read as follows:

§ 2.80 *Publication for opposition.*

If, on examination or reexamination of an application for registration on the Principal Register, it appears that the applicant is entitled to have his mark registered, the mark will be published in the OFFICIAL GAZETTE for opposition. The mark will also be published in the case of an application to be placed in concurrent use proceedings, if otherwise registrable.

§§ 2.81, 2.82 [*Redesignated*]

4. Sections 2.82 and 2.83 are redesignated as §§ 2.81 and 2.82, respectively.

5. A new § 2.83 is added and reads as follows:

§ 2.83 *Conflicting marks.*

(a) Whenever an application is made for registration of a mark which so resembles another mark or marks pending registration as to be likely to cause confusion or mistake or to deceive, the mark with the earliest effective filing date will be published in the OFFICIAL GAZETTE for opposition if eligible for the Principal Register, or issued a certificate of registration if eligible for the Supplemental Register. A notice will be sent, if practicable, to the applicants involved informing them of the publication or issuance of the earliest filed mark.

(b) In situations in which conflicting applications have the same effective filing date, the application with the earliest date of execution will be published in the OFFICIAL GAZETTE for opposition or issued on the Supplemental Register. A notice will be sent, if practicable, to the applicants involved informing them of the publication or issuance of the application with the earliest date of execution.

(c) Action on the conflicting application which is not published in the OFFICIAL GAZETTE for opposition or not issued on the Supplemental Register will be suspended by the Examiner of Trademarks until the published or issued application is registered or abandoned.

6. The heading for §§ 2.91–2.99 entitled "Interferences" is revised to read "Interferences and Concurrent Use Proceedings."

7. Section 2.91 is revised to read as follows:

§ 2.91 *Interferences.*

(a) An interference will not be declared between two applications or between an application and a registration except upon petition to the Commissioner. Interferences will be declared by the Commissioner only upon a showing of extraordinary circumstances which would result in a party being unduly prejudiced without an interference. In ordinary circumstances, the availability of an opposition or cancellation proceeding to the party will be deemed to remove any undue prejudice.

(b) Registrations and applications to register on the Supplemental Register, registrations under the Act of 1920, and registrations of marks the right to use of which has become incontestable are not subject to interference.

8. Section 2,92 is revised to read as follows:

§ 2.92 *Preliminary to interference.*

Before the declaration of an interference, the marks which are to form the subject matter of the controversy must have been decided to be registrable by each party except for the interfering mark.

9. Section 2.98 is revised to read as follows:

§ 2.98 *Adding party to interference.*

If, during the pendency of an interference, another case appears involving substantially the same registrable subject matter, the Examiner of Trademarks may request the suspension of the interference for the purpose of adding said case. Such suspension will be granted as a matter of course if no testimony has been taken. If any testimony has been taken or is about to be taken, the case will not be added except upon approval of a member of the Trademark Trial and Appeal Board. If the case is not added, the Examiner of Trademarks may suspend action on such case pending termination of the interference proceeding.

§ 2.101 [*Amended*]

10. Section 2.101 is amended by changing "2.81," to read "2.80."

§ 2.103 [*Amended*]

11. Section 2.103 is amended by changing "2.81" in the second sentence to read "2.80."

Dated: February 2, 1972.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Approved:

JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

[FR Doc. 72-1863; Filed 2-8-72; 8:46 am]

Pub. 37 F.R. 2880, Feb. 9, 1972

[896 O.G. TM 2]

(325) TITLE 43—PUBLIC LANDS: INTERIOR

SUBTITLE A—OFFICE OF THE SECRETARY OF THE INTERIOR

[Circular 2320]

PART 25—USE OF THE "JOHNNY HORIZON" SYMBOL

On page 21207 of the Federal Register of November 4, 1971, there was published a notice and text of a proposed amendment to Subtitle A of Title 43, Code of Federal Regulations. The purpose of the amendment is to provide rules for the commercial manufacture, importation, reproduction, and use of the character "Johnny Horizon"—the official symbol for a public service antilitter and environmental cleanup program to maintain the beauty and utility of the Nation's public lands carried on by the Department of the Interior. It also provides guidelines for noncommercial use and for contributions of money and personal property to the "Johnny Horizon" program. These regulations are promulgated in accordance with the Act of September 25, 1970 (84 Stat. 870).

Interested persons were given until December 16, 1971, within which to submit comments, suggestions, or objections

to the proposed amendment. Only one comment was received which suggested that the word "importation" be included in certain sections to prevent the importation of unauthorized "Johnny Horizon" items manufactured or reproduced outside of the United States. This suggested change has been made. A reference to State agencies as possible cooperators has also been added.

The proposed amendment is hereby adopted as changed, and is set forth below. This amendment shall become effective February 15, 1972.

HARRISON LOESCH,
Feb. 4, 1972. *Assistant Secretary of the Interior.*

Sec.
25.0–1 Purpose.
25.0–2 Objectives.
25.0–3 Authority.
25.0–5 Definitions.
25.1 Commercial use.
25.2 Noncommercial use.
25.3 Contributions.
25.4 Unauthorized use.

AUTHORITY: The provision of this Part 25 issued under the Act of September 25, 1970 (84 Stat. 870).

A new Part 25 is added to Subtitle A, Title 43 of the Code of Federal Regulations to read as follows:

§ 25.0–1 *Purpose.*

This subpart establishes rules for the commercial and noncommercial use of the "Johnny Horizon" symbol and name.

§ 25.0–2 *Objectives.*

The objectives of these regulations are (a) to maintain the integrity of the name and characterization of "Johnny Horizon"—the official symbol for a public service antilitter and environmental cleanup program to maintain the beauty and utility of the Nation's public lands, (b) to authorize the noncommercial use of the symbol, and (c) to provide for use or royalty fees for the manufacture, reproduction, or use of the symbol for commercial purposes.

§ 25.0–3 *Authority.*

The Act of September 25, 1970 (84 Stat. 870) authorizes the Secretary of the Interior to establish and collect use or royalty fees for the manufacture, reproduction, or use of the "Johnny Horizon" name and symbol. The Act makes unauthorized manufacture, reproduction, and use a crime (18 U.S.C. 714). The Act also provides that royalty and use fees will be deposited in a special account and used for the purpose of furthering nationwide antilitter campaigns.

§ 25.0–5 *Definitions.*

As used in this part:

(a) The term "Johnny Horizon" means the name or characterization "Johnny Horizon" originated by the Bureau of Land Management, Department of the Interior, as the official symbol for a public service antilitter and environmental cleanup program, and as described in 18 U.S.C. 714, the representation of a tall, lean man, with strong facial features, who wears slacks and sport shirt buttoned to the collar (both green, when colored), no tie, a field jacket (red, when colored), boot-type shoes (brown, when colored) and who carries a backpack.

(b) "Director" means the Director of the Bureau of Land Management, or the person he delegates to act for him on matters pertaining to the "Johnny Horizon" program.

(c) "Johnny Horizon program" means those activities and supporting services conducted in furtherance of a public service antilitter and environmental cleanup campaign which uses the "Johnny Horizon" name or symbol.

§ 25.1 *Commercial use.*

(a) *Licenses.* The "Johnny Horizon" name or symbol may be used for commercial purposes only under a license issued pursuant to the regulations in this part. Licenses will be granted to any individual, business, or corporation if the Director determines that the proposed commercial use will promote the purposes of the "Johnny Horizon" program and will not impair the integrity of the name or symbol.

(b) *Terms and conditions.* In order to maintain the integrity of the "Johnny Horizon" program and to regulate the manufacture, importation, reproduction, and use of the "Johnny Horizon" name and symbol licenses will be subject, but not limited, to the following terms and conditions:

(1) Payment of fair return to the United States for its Property through negotiation of use or royalty fees.

(2) Licenses are nontransferable.

(3) All proposed products must be approved by the Director prior to manufacture, importation, or reproduction by the licensee. Substances inherently dangerous to users shall not be used.

(4) All licenses shall contain Equal Employment Opportunity provisions in compliance with Executive Order 11246, as amended (30 F.R. 12319 (1965)), and regulations issued pursuant thereto (41 CFR Chapter 60 and Part 17 of this chapter).

(5) Alteration of artwork must first be approved by the Director.

(6) Licenses shall be subject to revocation by the Director at any time he finds that (i) the use involved is injurious to the characterization of "Johnny Horizon," or (ii) there has been a violation of the terms and conditions of the license.

§ 25.2 *Noncommercial use.*

(a) *Permitted uses.* Products bearing the name or symbol of "Johnny Horizon," provided by the Government or acquired from licensed sources, may be used without a license or advance permission by any person or organization for the purpose of furthering antilitter and environmental cleanup campaigns, provided that no charge is made by the unlicensed user for service or products.

(b) *Technical advice.* To the extent possible, technical advice will be given to interested parties upon request to the Director.

(c) *Cooperation.* The Director may enter into cooperative agreements with other Federal and State agencies for use of the name or symbol of "Johnny Horizon." Agreements shall state the responsibilities of each agency pertaining to (1) maintaining the integrity of the program, (2) supplying materials, (3) assisting other groups or organizations, (4) restrictions of uses of materials, (5) altering artwork, and (6) making arrangements with public personalities engaged in the program.

§ 25.3 *Contributions.*

The Director may accept contributions of money and personal property by any person or organization for use in the "Johnny Horizon" program.

§ 25.4 *Unauthorized use.*

Manufacture, importation, reproduction, or use of the "Johnny Horizon" name or symbol, except as provided for under these regulations, in this part is prohibited (18 U.S.C. 714).

[FR Doc. 72–2144; Filed 2–11–72; 8:51 a.m.]

37 F.R. 3183; Feb. 12, 1972

[896 O.G. TM 68]

---

(326) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 2—RULES OF PRACTICE IN TRADEMARK CASES

Miscellaneous Amendments

A proposal was published at 36 F.R. 19315 to revise §§ 2.54, 2.67, 2.87, 2.88, and 2.187. Pursuant to this notice, comments have been received from interested persons. Full consideration has been given to all matter presented and changes in the text of the original proposal have been made in view thereof.

Section 2.54 is being revised to permit the Patent Office to accept substitute drawings in appropriate situations.

The revision of § 2.67 clarifies the situations in which an examiner may suspend action on an application.

Sections 2.87 and 2.88 are being revised to state that both goods and services may be the subject of a single application or certificate of registration in accordance with section 30 of the Trademark Act of 1946. Additionally, § 2.87 requires five specimens be submitted for each class.

The revision to § 2.187 insures that the certificate of registration issues to the current owner of the mark.

Effective date. This revision shall become effective March 17, 1972.

In consideration of the foregoing and pursuant to the authority contained in section 41 of the Act of July 5, 1946 (60 Stat. 440; 15 U.S.C. 1123) and section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), Part 2 of Chapter I of Title 37 of the Code of Federal Regulations is hereby amended as follows:

1. Section 2.54 is revised to read as follows:

§ 2.54 *Informal drawings.*

A drawing not in conformity with §§ 2.51 to 2.53 may be accepted for purpose of examination, but the drawing must be corrected or a new one furnished, as required, before the mark can be published or the application allowed. The necessary corrections will be made by the Patent Office upon applicant's request and at his expense.

2. Section 2.67 is revised to read as follows:

§ 2.67 *Suspension of action by the Patent Office.*

Action by the Patent Office may be suspended for a reasonable time for good and sufficient cause. The fact that a proceeding is pending before the Patent Office or a court which is relevant to the issue of registrability of the applicant's mark, or the fact that the basis for registration is, under the provisions of Section 44(e) of the Act, registration of the mark in a foreign country and the foreign application is still pending, will be considered prima facie good and sufficient cause. An applicant's request for a suspension of action under this section filed within the 6-month response period (see § 2.62) may be considered responsive to the previous office action. The first suspension is within the discretion of the Examiner of Trademarks and any subsequent suspension must be approved by the Commissioner.

3. Section 2.87 is revised to read as follows:

§ 2.87 *Combined applications.*

An application also may be filed to register the same mark for any or all of the goods and/or services upon or in connection with which the mark is actually used and which fall within a plurality of classes. However, dates of use for each class, five specimens for each class, and a fee equaling the sum of the fees for filing an application in each class are required. A single certificate of registration for the mark may be issued.

4. Section 2.88 is revised to read as follows:

§ 2.88 *Applications may be combined.*

(a) When several applications have been filed by the same applicant for registration on the same register of a mark shown in identical form on the drawings for goods and/or services in different classes and each of the applications has been allowed, a single certificate based on such applications may be issued. A request for the issuance of a consolidated certificate must be made of record in each of the applications involved prior to the allowance of any of the applications.

(b) The issuance of any original certificate may be suspended upon request of the applicant, for a period not exceeding 6 months, to permit such consolidation.

5. Section 2.187 is revised to read as follows:

§ 2.187 *Certificate of registration may issue to assignee.*

The certificate of registration may be issued to the assignee of the applicant provided the assignment is recorded in the Patent Office at least 10 days before the application is allowed, and written notice of the recording of the assignment and the address of the assignee is made of record in the application file by the applicant or assignee.

Dated: February 14, 1972.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Approved:

JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

[FR Doc. 72-2684; Filed 2-23-72; 8:46 a.m.]

Published in 37 F.R. 3897, Feb. 24, 1972

[896 O.G. TM 130]

(327) TRADEMARK MANUAL OF EXAMINING PROCEDURE

Work is in progress on a Manual of Trademark Examining Procedure which is being designated in brief as "TMEP." The preliminary material for the Manual consists of directives which are being prepared and issued at intervals. Each directive is devoted to a particular procedure in the trademark examining process, and the directives constitute official guidelines for the examination of trademark applications.

Ten directives have been issued to date.

Trademark Examining Directives can be ordered from the Superintendent of Documents, United States Government Printing Office, Washington, D.C., 20402, at an annual subscription of $1.50, plus 50¢ for foreign mailing.

(See original announcement dated July 27, 1971 in the OFFICIAL GAZETTE of August 31, 1971, vol. 889, No. 5.)

ROBERT GOTTSCHALK,
Commissioner of Patents.

Feb. 29, 1972.

[897 O.G. TM 2]

---

(328) PETITION TO MAKE TRADEMARK APPLICATIONS SPECIAL

The practice of expediting the prosecution of new trademark applications on request of the applicant (accelerated prosecution) was rescinded, effective Aug. 1, 1971 (36 F.R. 13231, July 16, 1971; 825 O.G. 2). This action was taken after a careful study of the practice, including a recommendation of the Public Advisory Committee for Trademark Affairs that the Patent Office terminate accelerated prosecution of trademark applications. The study considered both the effect of the procedure on the workload of the Trademark Operations and the broader interest of examining trademark applications in an order which is equitable to all applicants.

Since the termination of this practice, the Office has experienced some increase in the number of petitions requesting the Commissioner to invoke his supervisory authority pursuant to Rule 2.146 in order to advance the examination of applications out of their regular order. This was to be expected since applicants who might have been able to show special circumstances entitling them to advanced examination could previously achieve this special treatment without resorting to a petition. However, some of the petitions now being received are not considered sufficient to justify the extraordinary relief of invoking the supervisory authority of the Commissioner for the purpose of advancing the applications out of their regular order.

In particular, a number of such petitions have been based on the ground that the applicant is about to embark on an advertising campaign or to commit advertising or promotional expenditures in which the mark applied for is material. Such a ground is not considered to constitute appropriate circumstances justifying the advancement of the application out of its regular turn and the petitions based on such ground have been and will continue to be denied. The principal reason for the denial is that these circumstances are applicable to a substantial portion of the trademark applications filed in the Patent Office. The supervisory authority of the Commissioner should be exercised only where an extraordinary reason for such action has been disclosed. See *Anderson & Dyer* v. *Lowry*, 89 O.G. 1861, 1899 C.D. 230, and *Wilputte* v. *Van Ackeren*, 103 USPQ 235. Thus, the extraordinary remedy of invoking the supervisory authority of the Commissioner is not considered appropriate under these circumstances.

In the interest of equitable treatment of all applicants, the policy of the Office in granting such petitions will be restricted to those cases in which particular and very special circumstances exist, such as a demonstrable possibility of loss of substantial rights, rather than circumstances which would be equally applicable to a large number of other applicants for trademark registration.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Date: Mar. 13, 1972.

[897 O.G. TM 2]

(329) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 2—RULES OF PRACTICE IN TRADEMARK CASES

Trademark Inter Partes Procedure

A proposal was published at 36 F.R. 18002 to revise, amend, redesignate, or revoke §§ 2.99, 2.104, 2.112, 2.117, 2.119, 2.120, 2.122–2.125, and 2.127–2.129 of the Rules of Practice in Trademark Cases. Pursuant to the notice, written comments have been received and a public hearing was held October 22, 1971. Full consideration has been given to all matter presented and changes in the text of the original proposal have been made in view thereof.

Amendments to the present text of the rules are described below. In cases where the amendment differs from that set forth in the notice of proposed rule making, that change is also described below.

Sections 2.104 and 2.112 are being revised by adopting langage from the Federal rules requiring a short and plain statement showing how the party would be damaged. The proposal required a statement "tending to show why" the party would be damaged.

Section 2.117 is being redesignated as § 2.116 and is being revised to clarify the applicability of the Federal Rules of Civil Procedure to Patent Office proceedings.

A new § 2.117 authorizing suspension of proceedings by the Trademark Trial and Appeal Board when the parties are engaged in civil litigation which may be dispositive of the case, has been added. The new rule gives the Board discretion in matters of suspension whereas the proposed rule required a mandatory suspension.

Section 2.119 is being amended by incorporating the substance of § 1.248 in a new paragraph.

Section 2.120 is being revised to adopt the Federal Rules of Civil Procedure insofar as they are applicable to Patent Office proceedings. The numbers of the applicable Federal rules are not listed since they are incorporated by reference in § 2.120. For example, § 2.120(a)(3) as adopted does not refer to Federal Rule 32 which governs use of discovery depositions.

Section 2.120(a) sets forth restrictions on deposition procedures, discovery of a foreign party and use of discovery depositions.

Existing § 2.120(b) is being deleted and the proposed paragraph is not being adopted. Rule 36 of the Federal Rules of Civil Procedure will govern requests for admissions. A new paragraph (b) governing use of admissions and answers to interrogatories is being adopted.

Existing § 2.120 paragraphs (c) through (e) are being deleted.

Section 2.120(f) is also deleted and proposed § 2.120(c) is not being adopted. Rule 33 of the Federal Rules of Civil Procedure will govern the interrogatory practice. It is believed that the Federal rule will provide uniformity in practice and a body of law which will serve as a guideline to both attorneys and the Board. Some comments were received, however, which expressed a preference for limited interrogatories. In view of such comments, the Office plans to evaluate on a continuing basis the effectiveness and utilization of Federal Rule 33. If instances arise in which Rule 33 does not appear to be fully satisfactory, it may be that consideration will be given to a more limited practice.

A new § 2.120(c) entitled "Failure to Make Discovery: Sanctions" has been added.

Section 2,122(b) is being revised to state that before a pleaded registration will be received in evidence, two copies of the registration showing its status and title or an order for such copies must accompany the opposition or petition to cancel.

Section 2.123(c) relating to printed publications and official records, is being redesignated as § 2.122(c) and revised to incorporate § 1.282 (Patent Rule 282).

A new § 2.122(d) is being added and incorporates the substance of § 1.283 (Patent Rule 283).

Section 2.123 has been completely revised to incorporate the provisions of §§ 1.273–1.281, 1.285, and 1.286 (Patent Rules 273–281, 285, and 286). Portions of the Patent Rules which are not applicable to trademark practice have been omitted and in some instances the Federal Rules of Civil Procedure apply. A few changes have been made in this section as originally propsed; they are as follows:

The title of § 2.123 is being amended by inserting the word "trial" before "testimony."

Proposed § 2.123(e)(5) is being revised to permit a witness to sign a deposition before any officer authorized to administer oaths.

Proposed § 2.123(f)(5) is being deleted and § 2.123(f)(6) is being redesignated as § 2.123(f)(5).

Section 2.124(b) is being amended to require testimony by written questions to be prepared with each answer preceded by its corresponding question.

Section 2.124a is being revoked. Testimony in foreign countries will be covered in § 2.124(d) which provides that such testimony will be taken by depositions upon written questions.

Reference numbers in § 2.125 have been changed and the reference to "the original transcript" in the second sentence of paragraph (a) is being changed to read "the certified transcript."

Section 2.127(a) provides that the Trademark Trial and Appeal Board may treat a motion as conceded when a party fails to file a brief in opposition to the motion. Sections 2.127 (b) and 2.129(c) are amended by adding a sentence requiring briefs in opposition to petitions for reconsideration to be filed within 15 days.

Section 2.128(b) includes certain changes with respect to the form required for briefs.

In consideration of the comments and pursuant to the authority contained in section 41 of the Act of July 5, 1946 (60 Stat. 440; 15 U.S.C. 1123) and section 6 of the Act of July 19, 1952 (66 Stat. 793, 35 U.S.C. 6), Part 2 of Chapter I of Title 37 of the Code of Federal Regulations is hereby amended as follows:

1. In § 2.99, a new paragraph (d) is added and reads as follows:

§ 2.99 *Application to register as concurrent user.*

* * * * *

(d) When concurrent registration is sought on the basis of a court determination of the rights of the parties to use the marks in commerce, the application shall be examined by the Examiner of Trademarks. If the applicant is entitled to registration subject only to the concurrent lawful use of a party to the court proceeding, the Examiner of Trademarks may publish or allow the application, provided the court decree specifies the rights of the parties.

2. Section 2.104 is revised to read as follows:

§ 2.104 *Contents of opposition.*

The opposition must set forth a short and plain statement showing how the opposer would be damaged by the registration of the opposed mark and state the grounds for opposition. A duplicate copy of the opposition including exhibits shall be filed.

3. Section 2.112 is revised to read as follows:

§ 2.112 *Petition for cancellation.*

The petition to cancel, which must be verified, or include a declaration in accordance with § 2.20, must set forth a short and plain statement showing how the petitioner is or will be damaged by the registration, state the grounds for cancellation, and indicate the respondent party to whom notice shall be sent. A duplicate copy of the petition, including exhibits, shall be filed with the petition. Applications to cancel different registrations owned by the same party may be joined in one petition when appropriate, but the fee for each application to cancel a registration must accompany the petition.

4. Section 2.117 is redesignated as § 2.116 and paragraph (a) is revised as amended, § 2.116 reads as follows:

§ 2.116 *Federal Rules of Civil Procedure.*

(a) Except as otherwise provided, and wherever applicable and appropriate, procedure and practice in inter partes proceedings shall be governed by the Federal Rules of Civil Procedure.

* * * * *

5. A new § 2.117 is added and reads as follows:

§ 2.117 *Suspension of proceedings.*

Whenever it shall come to the attention of the Trademark Trial and Appeal Board that parties to a pending case are

engaged in a civil action which may be dispositive of the case, proceedings before the Board may be suspended until termination of the civil action.

6. Section 2.119 is amended as follows: Paragraph (a) is revised, paragraph (b) is redesignated as paragraph (c), and a new paragraph (b) is added. As amended, § 2.119 reads as follows:

§ 2.119 *Service of papers.*

(a) Every paper filed in the Patent Office in inter partes cases, including notice of appeal, must be served upon the other parties except the notice of interference (§ 2.93), the notice of opposition (§ 2.105), the petition for cancellation (§ 2.113), and the notice of a concurrent use proceeding (§ 2.99), which are mailed by the Patent Office. Proof of such service must be made before the paper will be considered by the Office. A statement signed by the attorney or agent, attached to or appearing on the original paper when filed, clearly stating the date and manner in which service was made will be accepted as prima facie proof of service.

(b) Service of papers must be on the attorney or agent of the party if there be such or on the party if there is no attorney or agent, and may be made in either of the following ways: (1) by delivering a copy of the paper to the person served; (2) by leaving a copy at the usual place of business of the person served, with someone in his employment; (3) when the person served has no usual place of business, by leaving a copy at his residence, with a member of his family over 14 years of age and of discretion; (4) transmission by first-class mail, which may also be certified or registered. Whenever it shall be satisfactorily shown to the Commissioner that none of the above modes of obtaining service or serving the paper is practicable, service may be by notice published in the OFFICIAL GAZETTE.

(c) When service is made by mail, the date of mailing will be considered the date of service. Whenever a party is required to take some action within a prescribed period after the service of a paper upon him by another party and the paper is served by mail, 5 days shall be added to the prescribed period.

7. Section 2.120 is revised to read as follows:

§ 2.120 *Discovery procedure.*

The provisions of the Federal Rules of Civil Procedure relating to discovery shall apply in inter partes trademark cases except as otherwise provided in this section. The Trademark Trial and Appeal Board will specify the closing date for the taking of discovery.

(a) *Depositions for discovery*—(1) *Procedure.* The deposition of a person shall be taken in the Federal judicial district where he resides or is regularly employed. The responsibility for securing the attendance of a propose deponent, other than a party or anyone who at the time set for the taking of the deposition was an officer, director, or managing agent of a party, or a person designated under Rule 30(b)(6) or 31(a) of the Federal Rules of Civil Procedure to testify on behalf of a party, rests wholly with the interested party. See 35 U.S.C. 24.

(2) *Discovery of foreign party.* The discovery deposition of a party or an officer, director, or managing agent of a party, or a person designated under Rule 30(b)(6) or 31(a) of the Federal Rules of Procedure to testify on behalf of a party, domiciled in a foreign country may be taken in the manner prescribed by § 2.124.

(3) *Use of discovery depositions.* A discovery deposition shall not be considered as part of the record in the case unless the party offering the deposition, or any part thereof, files the same before the close of his testimony period (testimony-in-chief or rebuttal as appropriate) and also files a notice of reliance thereon. A discovery deposition should not be filed in the Patent Office in the absence of a notice of reliance. Objections, including any made during the examination, will be considered only if made or renewed at the hearing.

(b) *Use of admission or answer to interrogatory.* No admission or answer to an interrogatory shall be considered as part of the record in the case unless the party propounding the request for admission or interrogatory files, before the close of his testimony period (testimony-in-chief or rebuttal, as appropriate), a copy of the admission and the request therefor and/or a copy of the interrogatory and its answer and also files a notice of reliance thereon.

(c) *Failure to make discovery: Sanctions.* If any party fails or refuses to answer any proper question in taking discovery depositions or fails or refuses to answer any proper question propounded by interrogatories or fails or refuses to comply with a request to produce and permit the inspection and copying of designated things, the party seeking discovery may apply to the Trademark Trial and Appeal Board for an order compelling discovery. If a party or an officer, director, or managing agent of a party, or a person designated under Rule 30(b)(6) or 31(a) of the Federal Rules of Civil Procedure to testify on behalf of a party, fails to obey an order to provide or permit discovery, the Trademark Trial and Appeal Board may strike out all or any part of any pleading of that party, dismiss the action or proceeding, or deny any part thereof, enter judgment as by default against that party or take any such other action as may be deemed appropriate.

8. In § 2.122, paragraph (b) is revised and new paragraphs (c) and (d) are added. As amended, those paragraphs of § 2.122 read as follows:

§ 2.122 *Matters in evidence.*

* * * * *

(b) A registration of the opposer or petitioner pleaded in an opposition or petition to cancel will be received in evidence and made part of the record if two copies showing status and title of the printed registration or an order for such copies accompany the opposition or petition.

(c) Printed publications, such as books and periodicals, available to the general public in libraries or of general circulation, and official records, if competent evidence and pertinent to the issue, may be introduced in evidence by filing in the Patent Office a notice to that effect during the period for the taking of the testimony of the party (during the period for taking of testimony-in-chief if such matters are not in rebuttal), specifying the record or the printed publication, the page or pages to be used, indicating generally its relevance, and accompanied by the record or authenticated copy or the printed publication or a copy. When a copy of an official record of the Patent Office is filed, it need not be a certified copy. The notice and copy of the record or publication must be served on each of the other parties.

(d) Upon motion duly made and granted, testimony taken in another proceeding, or testimony taken in a suit between the same parties or those in interest, may be used in a proceeding, so far as relevant and material, subject, however, to the right of any contesting party to recall or demand the recall of witnesses whose testimony has been taken, and to take other testimony in rebuttal of the testimony.

§ 2.123 *Trial testimony in inter partes cases.*

(a) Manner of taking testimony: Testimony of witnesses in inter partes cases may be taken (1) by depositions upon oral examination as provided by this section, or (2) by depositions upon written questions in accordance with the requirements of this section and § 2.124.

(b) Stipulations: If the parties so stipulate in writing, depositions may be taken before any person authorized to administer oaths, at any place, upon any notice, and in any manner and when so taken may be used like other depositions. By agreement of the parties, the testimony of any witness or witnesses of any party, may be submitted in the form of an affidavit by such witness or witnesses. The parties may stipulate what a particular witness would testify to if called, or the facts in the case of any party may be stipulated.

(c) Notice of examination of witnesses: Before the depositions of witnesses shall be taken by a party, due notice in writing shall be given to the opposing party or parties, as provided in § 2.119(b), of the time when and place where the depositions will be taken, of the cause or matter in which they are to be used, and the name and address of each witness to be examined; if the name of a witness is not known, a general description sufficient to identify him or the particular class or group to which he belongs, together with a satisfactory explanation, may be given instead. Neither party shall take depositions in more than one place at the same time, nor so nearly at the same time that reasonable opportunity for travel from one place of examination to the other is not available.

(d) Persons before whom depositions may be taken: Depositions may be taken before persons designated by Rule 28 of the Federal Rules of Civil Procedure.

(e) Examination of witnesses:

(1) Each witness before testifying shall be duly sworn according to law by the officer before whom his deposition is to be taken.

(2) The deposition shall be taken in answer to questions, with the questions and answers recorded in their regular order by the officer, or by some other person (who shall be subject to the provisions of Rule 28 of the Federal Rules of Civil Procedure) in the presence of the officer except when his presence is waived on the record by agreement of the parties. The Testimony shall be taken stenographically and transcribed, unless the parties present agree otherwise. In the absence of all opposing parties and their attorneys or agents, depositions may be taken in longhand, typewriting, or stenographically.

(3) The opposing party shall have full opportunity to cross-examine the witnesses. If the opposing party shall attend the examination of witnesses not named in the notice, and shall either cross-examine such witnesses or fail to object to their examination, he shall be deemed to have waived his right to object to such examination for want of notice.

(4) All objections made at the time of the examination to the qualifications of the officer taking the deposition, or to the manner of taking it, or to the evidence presented, or to the conduct of any party, and any other objection to the proceedings, shall be noted by the officer upon the deposition. Evidence objected to shall be taken subject to the objections.

(5) When the deposition has been transcribed, the deposition shall be carefully read over by the witness or by the officer to him, and shall then be signed by the witness in the presence of any officer authorized to administer oaths unless the reading and the signature be waived on the record by agreement of all parties.

(f) Certification and filing by officer. The officer shall annex to the deposition his certificate showing:

(1) Due administration of the oath by the officer to the witness before the commencement of his deposition;

(2) The name of the person by whom the deposition was taken down, and whether, if not taken down by the officer, it was taken down in his presence;

(3) The presence or absence of the adverse party;

(4) The place, day, and hour of commencing and taking the deposition;

(5) The fact that the officer was not disqualified as specified in Rule 28 of the Federal Rules of Civil Procedure.

If any of the foregoing requirements are waived, the certificate shall so state. The officer shall sign the certificate and affix thereto his seal of office, if he has such a seal. Unless waived on the record by agreement, he shall then, without delay, securely seal in an envelope all the evidence, notices, and paper exhibits, inscribed upon the envelope a certificate giving the number and title of the case, the name of each witness, and the date of sealing, address the package, and forward the same to the Commissioner of Patents. If the weight or bulk of an exhibit shall exclude it from the envelope, it shall, unless waived on the record by agreement of all parties, be authenticated by the officer and transmitted in a separate package marked and addressed as provided in this section.

(g) Form of deposition:

(1) The pages of each deposition must be numbered consecutively, and the name of the witness plainly and conspicuously written at the top of each page. The deposition may be written on legal-size or letter-size paper, with a wide margin on the left hand side of the page, and with the writing on one side only of the sheet. The questions propounded to each witness must be consecutively numbered and each question must be followed by its answer.

(2) Exhibits must be numbered or lettered consecutively and each must be marked with the number and title of the case and the name of the party offering the exhibit. Entry and consideration may be refused to improperly marked exhibits.

(h) Depositions must be filed. All depositions which are taken must be duly filed in the Patent Office. On refusal to file, the Office at its discretion will not further hear or consider the contestant with whom the refusal lies; and the Office may, at its discretion, receive and consider a copy of the withheld deposition, attested by such evidence as is procurable.

(i) Inspection of depositions: After the depositions are filed in the Office, they may be inspected by any party to the case, but they cannot be withdrawn for the purpose of printing. They may be printed by someone specially designated by the Office for that purpose, under proper restrictions.

(j) Effect of errors and irregularities in depositions: Notice will not be taken of merely formal or technical objections which shall not appear to have wrought a substantial injury to the party raising them; and in the case of such injury it must be made to appear that, as soon as the party became aware of the ground of objection, he gave notice thereof. Rule 32(d)(1), (2), and (3)(a) and (b) of the Federal Rules of Civil Procedure shall apply to errors and irregularities in depositions.

(k) Objections to admissibility: Subject to the provisions of paragraph (j) of this section, objection may be made to receiving in evidence any deposition or part thereof, or any other evidence, for any reason which would require the exclusion of the evidence according to the established rules of evidence, which will be applied strictly by the Office.

(l) Evidence not considered: Evidence not obtained and filed in compliance with these sections will not be considered.

10. In § 2.124, paragraphs (a) and (b) are revised and a new paragraph (d) is added. As amended, § 2.124 reads as follows:

§ 2.124 *Testimony by depositions upon written questions.*

(a) A party may take the testimony of a witness by written questions to be propounded by an officer before whom depositions may be taken. See Rule 28 of the Federal Rules of Civil Procedure. The questions shall be served upon the other party within 10 days after the opening date set for taking the testimony of the party submitting the questions, together with a notice stating the name and address of the person who is to answer them and the name or descriptive title and address of the officer before whom the deposition is to be taken. Within 10 days thereafter, a party so served may serve cross questions upon the party proposing to take the deposition. Within 5 days thereafter, the latter may serve redirect questions upon a party who has served cross questions. Within 3 days after being served with redirect questions a party may serve recross questions upon the party proposing to take the depositions. Written objections to questions may be served on the party propounding the questions, and in response thereto substitute questions may be served, within 3 days.

(b) A copy of the notice and copies of all questions served shall be delivered by the party taking the testimony to the officer designated in the notice, who shall proceed to take the testimony of the witness in response to the questions and to prepare each answer immediately preceded by its corresponding question, then certify, and file the deposition, attaching thereto the copy of the notice and the questions received by him. Such depositions are subject to the same rulings for filing and serving copies as other depositions.

* * * * *

(d) Testimony in foreign countries shall be taken only by depositions upon written questions unless the parties stipulate otherwise in writing. Rule 28(b) of the Federal Rules of Civil Procedure shall apply to the taking of testimony in foreign countries.

§ 2.124a [*Revoked*]

11. Section 2.124a is revoked.

12. Section 2.125 is revised to read as follows:

§ 2.125 *Copies of testimony.*

(a) One copy of the transcript of testimony (taken in accordance with § 2.123(e) through (h) or § 2.124), together with copies of documentary exhibits, shall be served on each adverse party within 30 days after completion of the taking of such testimony. The certified transcript and exhibits and one copy of the transcript shall be filed in the Patent Office as promptly as possible.

(b) Each transcript and the copies thereof shall comply with § 2.123(g) as to arrangement, indexing and form.

13. In § 2.127, paragraphs (a) and (b) are revised. As amended, § 2.127 reads as follows:

§ 2.127 *Motions.*

(a) Motions shall be made in writing and shall contain a full statement of the grounds therefor. Any brief or memorandum in support of a motion shall accompany or be embodied in the motion. Briefs in opposition to a motion shall be filed within 15 days from the date of service of the motion unless another time is specified by the Trademark Trial and Appeal

Board or the time is extended on request. Where a party fails to file a brief in opposition to a motion, the Trademark Trial and Appeal Board may treat the motion as conceded. Oral hearings will not be held on motions except on order of the Trademark Trial and Appeal Board.

(b) Any petition for reconsideration or modification of a decision, if it is not appealable, must be filed within 10 days after the decision or, if the decision is appealable, within the time specified in § 2.129(c). Any brief in opposition shall be filed within 15 days after service of the petition.

14. In § 2.128, paragraph (b) is revised. As amended, § 2.128 reads as follows:

§ 2.128 *Final hearings and briefs.*

(b) Briefs shall be submitted in typewritten or printed form, double spaced on letter or legal size paper. Without leave of the Trademark Trial and Appeal Board, no brief shall contain more than 50 pages of argument and, in case of the reply brief, the entire brief shall not exceed 25 pages. Each brief shall contain an alphabetical index of cases therein.

* * * * *

15. In § 2.129, paragraph (c) is revised. As amended, § 2.129 reads as follows:

§ 2.129 *Oral argument.*

* * * * *

(c) Any petition for rehearing, reconsideration, or modification of a decision must be filed within 30 days from the date thereof. Any brief in opposition shall be filed within 15 days after service of the petition.

Effective date. This revision shall be applicable to all proceedings instituted on or after July 1, 1972.

Date: April 5, 1972.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Approved: April 11, 1972.

JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

[FR Doc. 72-5830; Filed 4-17-72; 8:52 am]

Published in 37 F.R. 7605; Apr. 18, 1972

[898 O.G. TM 170]

---

(330) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 1—RULES OF PRACTICE IN PATENT CASES

PART 2—RULES OF PRACTICE IN TRADEMARK CASES

Appeal to U.S. Court of Customs and Patent Appeals

The Commissioner of Patents is amending §§ 1.301 and 2.145 of the rules of practice to set forth the time in which an order for transmitting a transcript to the Court of Customs and Patent Appeals should be filed in the Patent Office. Additionally, for the purpose of clarification, all references to "subsection" in § 2.145 have been amended to read "paragraph." These amendments do not effect any change in practice, but merely notify parties filing appeals of the time necessary for the Patent Office to copy and certify a transcript. Since these changes impose no burden on any person, notice and public procedure thereon are deemed unnecessary.

Therefore, pursuant to the authority contained in section 41 of the Act of July 5, 1946 (60 Stat. 440; 15 U.S.C. 1123), and section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), Parts 1 and 2 of Chapter I of Title 37 of the Code of Federal Regulations are hereby amended as follows:

* * * * *

2. In § 2.145, paragraph (a) is amended by adding a sentence at the end; paragraphs (b), (c), and (d) are amended by substituting "paragraph" for "subsection." As amended, § 2.145 reads as follows:

§ 2.145 *Appeal to court and civil action.*

(a) *Appeal to U.S. Court of Customs and Patent Appeals.* An applicant for registration, or any party to an interference, opposition, or cancellation proceeding or any party to an application to register as a concurrent user, hereinafter referred to as inter partes proceedings, who is dissatisfied with the decision of the Trademark Trial and Appeal Board and any registrant who has filed an affidavit or declaration under section 8 of the act or who has filed an application for renewal and is dissatisfied with the decision of the Commissioner (§§ 2.165, 2.184), may appeal to the U.S. Court of Customs and Patent Appeals. The appellant must take the following steps in such an appeal: (1) In the Patent Office give notice to the Commissioner and file the reasons of appeal (see paragraphs (b) and (d) of this section); (2) in the court, file a petition of appeal and a certified transcript of the record within a specified time after filing the reasons of appeal, and pay the fee for appeal, as provided by the rules of the court. The transcript will be transmitted to the Court by the Patent Office on order of and at the expense of the appellant. Such order should be filed with the notice of appeal, but in no case should it be filed later than 15 days thereafter.

(b) *Notice and reasons of appeal.* (1) when an appeal is taken to the U.S. Court of Customs and Patent Appeals, the appellant shall give notice thereof to the Commissioner, and file in the Patent Office, within the time specified in paragraph (d) of this section, his reasons of appeal specifically set forth in writing.

(2) In inter partes proceedings, the notice and reasons must be served as provided in § 2.119.

(c) *Civil action.* (1) Any person who may appeal to the U.S. Court of Customs and Patent Appeals (paragraph (a) of this section), may have remedy by civil action under section 21(b) of the act. Such civilization must be commenced within the time specified in paragraph (d) of this section.

(2) If an applicant or registrant in an ex parte case has taken an appeal to the U.S. Court of Customs and Patent Appeals, he thereby waives his right to proceed under section 21(b) of the act.

(3) If a party to an inter partes proceeding has taken an appeal to the U.S. Court of Customs and Patent Appeals, and any adverse party to the case shall, within 20 days after the appellant shall have filed notice of the appeal to the court (paragraph (b) of this section), file notice with the Commissioner that he elects to have all further proceedings conducted as provided in section 21(b) of the act, certified copies of such notices will be transmitted to the U.S. Court of Customs and Patent Appeals for such action as may be necessary. The notice of election must be served as provided in § 2.119.

(d) *Time for appeal or civil action.* The time for filing the notice and reasons of appeal to the U.S. Court of Customs and Patent Appeals (paragraph (b) of this section), or for commencing a civil action (paragraph (c) of this section), is 60 days from the date of the decision of the Trademark Trial and Appeal Board or the Commissioner, as the case may be. If a petition for rehearing or reconsideration is filed within 30 days after the date of the decision, the time is extended to 30 days after action on the petition. No petition for rehearing or reconsideration filed outside the time specified herein after such decision, nor any proceedings on such petition shall operate to extend the period of 60 days hereinabove provided. The time specified herein are calendar days. If the last day of time specified for appeal, or commencing a civil action falls on a Saturday, Sunday, or legal holiday, the time is extended to the next day which is neither a Saturday, Sunday, nor a holiday. If a party to an inter partes proceeding has taken an appeal to the U.S. Court of Customs and Patent Appeals and an adverse party has filed notice under section 21(a)(1) of the act that he elects to have all further proceedings conducted under section 21(b) of the act, the time for filing a civil action thereafter is specified in section 21(a)(1) of the act.

Effective date. This amendment will become effective upon its publication in the Federal Register (5-11-72).

Dated: May 1, 1972.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Approved: April 28, 1972.

JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

[FR Doc. 72-7159; Filed 5-10-72; 8:49 am]

Published in 37 F.R. 9175; May 11, 1972

[899 O.G. TM 77]

(331) TRADEMARKS—PROPOSED ADOPTION OF INTERNATIONAL CLASSIFICATION

On March 29, 1972, the Patent Office published a notice of proposed rule making in the Federal Register at 37 F.R. 6404. That notice proposed to amend Rule 6.1 of the Trademark Rules of Practice. A public hearing on the proposed amendment was held on June 14, 1972 in Arlington, Virginia, and interested persons were given the opportunity to submit comments regarding the proposed amendment until that date. It has come to our attention that the Federal Register notice never appeared in the OFFICIAL GAZETTE.

In order to insure that all interested persons have had an opportunity to comment, the date for written comments is hereby extended to August 18, 1972.

The notice as it appeared in the Federal Register is reproduced below.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Date: June 9, 1972.

Proposed Rule Making

CLASSIFICATION OF GOODS AND SERVICES

[37 CFR Part 6]

International Schedule

The Patent Office proposes to establish the "International Classification of Goods and Services to Which Trademarks Are Applied" (the subject of the "Nice Agreement Concerning the International Classification of Goods and Services for the Purposes of the Registration of Marks" of 1957 as revised at Stockholm, on July 14, 1967) as the primary classification of goods and services for registration of trademarks and service marks.

The Patent Office has studied the International Classification and, since March 5, 1968, has indicated the appropriate international class in all publications and on all issued registrations and renewals, as a subsidiary classification. Based on this experience, it is now believed that adoption of the international schedule as the primary classification is desirable. The international schedule is in use in more than 60 countries and is the subject of the aforementioned Nice Agreement to which the United States has recently become a party. The Nice Agreement provides for an International Committee of Experts whose task is to keep the classification current. The classification of specific goods and services is set forth in an alphabetical list entitled "International Classification of Goods and Services to Which Trademarks Are Applied" (published by the World Intellectual Property Organization). This listing is currently used by the office as a guideline for determining the degree of particularity of identification of goods. See "Identification of Goods and Services in Trademark Applications," 895 O.G. 390, TM 54.

Specifically it is proposed that all applications for registration of marks and renewals of registrations having a filing date later than September 30, 1972, be classified according to the International Classification for all administrative purposes set forth in the Trademark Act. Accordingly, the international classification would be the sole criteria for determining fees and classification of goods and services. Applications and renewals which are pending at the close of business on September 30, 1972, would continue to be processed under the present classification system. However, the Office would continue to mark all such published applications and registrations with the appropriate international class as a subsidiary classification as it has been doing for several years.

It is not proposed that the existing documents in the Trademark Search Room be reclassified. The U.S. classification system would continue to be used for purposes of searching registered and pending marks until such time as a complete conversion of the Trademark Search Room file to the international classification system is effected. Until such conversion is made, the U.S. class number would continue to be printed on all registrations in addition to the international class number so that searches can be made on the basis of the existing U.S. system. It should be noted that approximately 53 percent of these documents are indexed alphabetically, without regard to class. The remaining 47 percent of the files are organized under approximately 50 headings (e.g., common prefixes such as SAN, GOLD, etc. and numerals, letters, design features, etc.) and under each, the documents are filed by class. This portion of the search file would be maintained as at present, i.e. classified according to the present schedule of classes. Until such time as all documents in the search room include the international classification, the documents organized by class would continue to be filed according to the present U.S. classification.

For an interim period (i.e., until all marks pending as of September 30, 1972, have been disposed of) the trademark sections of the OFFICIAL GAZETTE which are organized by class would include two parts, one part for applications published or marks issued on the basis of applications filed prior to October 1, 1972, organized by class according to the existing schedule of classes; the other for applications published or marks issued on the basis of applications filed after September 30, 1972, organized by class according to the new international schedule. All publications of applications will show both the U.S. and the international class number.

None of the above changes apply to certification marks and collective membership marks which would continue to be classified as set forth in §§ 6.2 and 6.3.

All persons are invited to present their views, objections, recommendations, or suggestions in connection with the proposed change to the Commissioner of Patents, Washington, D.C. 20231, on or before June 14, 1972, on which date a hearing will be held at 2 p.m. e.d.s.t., in Room 8C06, Building 2, 2011 Jefferson Davis Highway, Arlington, Va. All persons wishing to be heard at the hearing are requested to notify the Commissioner of Patents of their intended appearance. Any written comments or suggestions may be inspected by any person upon written request a reasonable time after the closing date for submitting comments.

Notice is hereby given, therefore, that, pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 792; 35 U.S.C. 6) and in section 30 of the Trademark Act of 1946, as amended (October 9, 1962, 76 Stat. 773; 16 U.S.C. 1112), the Patent Office proposes to amend Title 37 of the Code of Federal Regulations by revising § 6.1.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Dated: March 21, 1972.

Approved:

JAMES H. WAKELIN, Jr.,
Assistant Secretary
for Science and Technology.

§ 6.1. SCHEDULE OF CLASSES OF GOODS AND SERVICES

Goods

1. Chemical products used in industry, science, photography, agriculture, horticulture, forestry; artificial and synthetic resins; plastics in the form of powders, liquids or pastes, for industrial use; manures (natural and artificial); fire extinguishing compositions; tempering substances and chemical preparations for soldering; chemical substances for preserving foodstuffs; tanning substances; adhesive substances used in industry.

2. Paints, varnishes, lacquers; preservatives against rust and against deterioration of wood; coloring matters, dyestuff; mordants; natural resins; metals in foil and powder form for painters and decorators.

3. Bleaching preparations and other substances for laundry use; cleaning, polishing, scouring, and abrasive preparations; soaps; perfumery, essential oils, cosmetics, hair lotions; dentifrices.

4. Industrial oils and greases (other than edible oils and fats and essential oils); lubricants; dust laying and absorbing compositions; fuels (including motor spirit) and illuminants; candles, tapers, night lights and wicks.

5. Pharmaceutical, veterinary, and sanitary substances; infants' and invalids' foods; Plasters, material for bandaging; material for stopping teeth, dental wax; disinfectants; preparations for killing weeds and destroying vermin.

6. Unwrought and partly wrought common metals and their alloys; anchors, anvils, bells, rolled and cast building materials; rails and other metallic materials for railway tracks; chains (except driving chains for vehicles); cables and wires (nonelectric); locksmiths' work; metallic pipes and tubes; safes and cash boxes; steel balls; horseshoes; nails and screws; other goods in nonprecious metal not included in other classes; ores.

7. Machines and machine tools; motors (except for land vehicles); machine couplings and belting (except for land vehicles); large size agricultural implements; incubators.

8. Hand tools and instruments; cutlery, forks, and spoons; side arms.

9. Scientific, nautical, surveying and electrical apparatus and instruments (including wireless), photographic, cinematographic, optical, weighing, measuring, signalling, checking (supervision), lifesaving and teaching apparatus and instruments; coin or counterfreed apparatus; talking machines; cash registers calculating machines; fire extinguishing apparatus.

10. Surgical, medical, dental, and veterinary instruments and apparatus (including artificial limbs, eyes, and teeth).

11. Installations for lighting, heating, steam generating, cooking, refrigerating, drying, ventilating, water supply and sanitary purposes.

12. Vehicles; apparatus for locomotion by land, air, or water.

13. Firearms; ammunition and projectiles; explosive substances; fireworks.

14. Precious metals and their alloys and goods in precious metals or coated therewith (except cutlery, forks, and spoons); jewellery, precious stones, horological, and other chronometric instruments.

15. Musical instruments (other than talking machines and wireless apparatus).

16. Paper and paper articles, cardboard and cardboard articles; printed matter, newspaper and periodicals, books; bookbinding material; photographs; stationery, adhesive materials (stationery); artists' materials; paint brushes; typewriters and office requisites (other than furniture); instructional and teaching material (other than apparatus); playing cards; printers' type and cliches (stereotype).

17. Gutta percha, indiarubber, balata, and substitutes, articles made from these substances and not included in other classes; plastics in the form of sheets, blocks, and rods, being for use in manufacture; materials for packing, stopping, or insulating; asbestos, mica and their products; hose pipes (nonmetallic).

18. Leather and imitations of leather, and articles made from these materials and not included in other classes; skins, hides; trunks and traveling bags; umbrellas, parasols, and walking sticks; whips, harness, and saddlery.

19. Building materials, natural and artificial stone, cement, lime, mortar, plaster, and gravel; pipes of earthernware or cement; roadmaking materials; asphalt, pitch, and bitumen; portable buildings; stone monuments; chimney pots.

20. Furniture, mirrors, picture frames; articles (not included in other classes) of wood, cork, reeds, cane, wicker, horn bone, ivory, whalebone, shell, amber, mother-of-pearl, meerschaum, celluloid, substitutes for all these materials, or of plastics.

21. Small domestic utensils and containers (not of precious metals, or coated therewith); combs and sponges; brushes (other than paint brushes); brushmaking materials; instruments and material for cleaning purposes, steel wool; unworked or semiworked glass (excluding glass used in building); glassware, porcelain, and earthernware, not included in other classes.

22. Ropes, string, nets, tents, awnings, tarpaulins, sails, sacks; padding and stuffing materials (hair, kapok, feathers, seaweed, etc.); raw fibrous textile materials.

23. Yarns, threads.

24. Tissues (piece goods); bed and table covers; textile articles not included in other classes.

25: Clothing, including boots, shoes, and slippers.

26. Lace and embroidery, ribands and braid; buttons, press buttons, hooks and eyes, pins and needles; artificial flowers.

27. Carpets, rugs, mats, and matting; linoleums and other materials for covering existing floors; wall hangings (nontextile).

28. Games and playthings; gymnastic and sporting articles (except clothing); ornaments and decorations for Christmas trees.

29. Meat, fish, poultry, and game; meat extracts; preserved, dried and cooked fruits and vegetables; jellies, jams; eggs, milk, and other dairy products; edible oils and fats; preserves, pickles.

30. Coffee, tea, cocoa, sugar, rice, tapioca, sago, coffee substitutes; flour, and preparations made from cereals; bread, biscuits, cakes, pastry and confectionery, ices; honey, treacle; yeast, baking powder; salt, mustard, pepper, vinegar, sauces, spices; ice.

31. Agricultural, horticultural, and forestry products and grains not included in other classes; living animals; fresh fruits and vegetables; seeds; live plants and flowers; foodstuffs for animals, malt.

32. Beer, ale, and porter; mineral and aerated waters and other nonalcoholic drinks; syrups and other preparations for making beverages.

33. Wines, spirits, and liqueurs.

34. Tobacco, raw or manufactured; smokers' articles; matches.

Services

35. Advertising and business.
36. Insurance and financial.
37. Construction and repair.
38. Communication.
39. Transportation and storage.
40. Material treatment.
41. Education and entertainment.
42. Miscellaneous.

[FR Doc. 72-4744 Filed 3-28-72; 8:47 am]

[900 O.G. TM 2]

---

(332) BULKY SPECIMENS IN TRADEMARK AND SERVICE MARK APPLICATIONS

Many of the applications which are being received in the Trademark Application Section contain specimens which are too bulky to be placed inside the application file. The handling and storing of these bulky specimens is taking more time and space than can be justified. The trademark rules do not provide for filing bulky specimens, and applicants and attorneys are requested to adhere to the precise provisions of the rules.

Trademark Rule 2.56 requires that specimens be of a material suitable for being placed in a file, be capable of being arranged flat (preferably not more than one inch in thickness), and not be larger than 8½ x 13 inches. If specimens of this character cannot be furnished, Trademark Rule 2.57 provides that facsimiles in the nature of photographs or similar reproductions be filed. Facsimiles must not be larger than 8½ x 13 inches and should clearly and legibly show the mark and all matter used in connection therewith.

In order to reduce the quantity of bulky specimens and to avoid the possibility of delay in examination due to bulky specimens, the following procedure has been adopted:

When specimens cannot be fitted into the file, the Trademark Application Section forwards the specimens to the Examiner separate from the file and attaches to the file two copies of a form which is a pre-examination memorandum pointing out that the bulky specimens are not acceptable and that proper specimens should be filed promptly. Upon receipt of the file and the forms, the Examiner mails one copy of the form to the applicant, or applicant's attorney if there be one, and places the other copy in the file. The Examiner will then destroy four of the bulky specimens, retaining one until proper specimens or facsimiles are received. Failure to furnish proper specimens as requested in the memorandum may delay the process of examination of the application.

ROBERT GOTTSCHALK,
Commissioner of Patents.

June 16, 1972.

[900 O.G. TM 176]

---

(333) TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

CHAPTER I—PATENT OFFICE, DEPARTMENT OF COMMERCE

PART 2—RULES OF PRACTICE IN TRADEMARK CASES

Petition for Review of Interlocutory Decision

The Commissioner of Patents is amending § 2.127(b) of the rules of practice to extend the time for filing a petition for reconsideration or modification of an interlocutory decision. The existing rule requires that such petition be filed

within 10 days from the date of the decision. Recent experience has demonstrated that this time period is insufficient in view of the possibility of delays in communicating the decision to the concerned parties. Accordingly, the rule is amended to permit filing of a petition within 30 days from the date of the decision. Since this change imposes no burden on any person, notice and public procedures thereon are deemed unnecessary.

Therefore, pursuant to the authority contained in section 41 of the Act of July 5, 1946 (60 Stat. 440; 15 U.S.C. 1123) and section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), Part 2 of Chapter I of Title 37 of the Code of Federal Regulations is hereby amended as follows:

§ 2.127 *Motions.*

* * * * *

(b) Any petition for reconsideration or modification of a decision must be filed within 30 days from the date thereof. Any brief in opposition shall be filed within 15 days after service of the petition.

* * * * *

Effective date. This amendment shall be applicable to all decision dated on or after September 1, 1972.

ROBERT GOTTSCHALK,
July 18, 1972. *Commissioner of Patents.*

Approved: July 21, 1972.

JAMES H. WAKELIN, Jr.,
Assistant Secretary for Science and Technology.

[FR Doc. 72-11883; Filed 7-28-72; 8:54 am]

Published in 37 F.R. 15304; July 29, 1972

[902 O.G. TM 2]

(334) TRADEMARK REGISTRATION TREATY

Vienna Diplomatic Conference

This is further to the notice published in Volume 902 of the OFFICIAL GAZETTE of September 19, 1972 (Trademark Section, p. 105 and Patent Section, p. 751) including the Conference draft of the Trademark Registration Treaty (TRT), the current draft of the Regulations and related documents.

As a result of the decision taken on September 29, 1972, by the Executive Committee of the Paris Union, a Diplomatic Conference for the negotiation of the proposed Trademark Registration Treaty will convene in Vienna, Austria, from May 17 to June 12, 1973.

In order to assist in the development of a position for a final preparatory meeting of a Committee of Experts scheduled in Geneva from December 5 to 12, 1972, to review the draft Regulations for the Treaty, interested parties were requested in the notice published on September 19 to submit their views or suggestions, particularly in regard to the draft regulations, to the Commissioner of Patents, Washington, D.C., 20231 by November 20, 1972. We have been advised that the Conference draft of the Regulations to be produced from the December meeting is planned to be released by the World Intellectual Property Organization in January 1973. When released it will be published in the OFFICIAL GAZETTE.

Final comments on the Conference drafts of the Treaty and the Regulations should be submitted to the Commissioner of Patents by April 6, 1973, in order to be considered in preparation of the U.S. position at the Diplomatic Conference of Vienna.

ROBERT GOTTSCHALK,
Oct. 24, 1972. *Commissioner of Patents.*

[903 O.G. TM 244]

REPEATED PATENT NOTICES ALSO PERTINENT TO TRADEMARKS

(5) ZIP CODE REMINDER

By Executive Memorandum of June 18, 1965, President Johnson directed all Federal Agencies to take the lead in adopting the ZIP Code system and instructed the Postmaster General to issue regulations governing the use of ZIP Codes by such agencies.

Pursuant to this directive, Section 137.26 has been added to the Postal Manual requiring compliance by Federal Agencies as follows:

1. Effective January 1, 1966, official mailings containing typed or handwritten addresses must include the ZIP Code.
2. Effective January 1, 1967, all Federal Agencies must use the ZIP Code in the addresses on *all* official mail and are required to presort quantity mailings by ZIP code.

TO THIS END, ALL FUTURE LETTERS, COUPONS, AND OTHER PAPERS BEARING THE SENDER'S ADDRESS WHICH ARE MAILED TO THE PATENT OFFICE MUST SHOW THE ZIP CODE DESIGNATION OF BOTH THE SENDER AND THE PATENT OFFICE.

The Patent Office ZIP Code is 20231. This designation should be used when writing to the Patent Office for any matter. In addition, the sender's own ZIP Code designation should be given. The benefits to be gained by the immediate use of ZIP Code are many: positive identification of areas; faster delivery of mail by reducing the number of handlings from point of origin to destination; and easier identification of post office address.

C. A. KALK,
Mar. 22, 1966. *Director of Administration.*

[825 O.G. 428]

(11) OFFICIAL PATENT OFFICE MAILING ADDRESS REMAINS WASHINGTON, D.C.

The official mailing address for all communications sent to the Patent Office remains:

Commissioner of Patents
Washington, D.C. 20231

Any telegrams sent to the Patent Office must also bear the above identical address.

The physical location of the Patent Office is 2021 Jefferson Davis Highway, Arlington, Virginia. This address must not be used when addressing mail to the Patent Office.

No reference to Crystal Plaza, Virginia, should be made in the address of *any* communication intended for delivery to the Patent Office by the Post Office Department or Western Union.

Compliance with this instruction will help prevent any unnecessary delay in the delivery of mail, telegrams, etc.

C. A. KALK,
Feb. 20, 1969. *Director of Administration.*

[860 O.G. 662]

(22) NEW PROCEDURES FOR PROCESSING ORDERS FOR CERTIFIED COPIES WHEN MATERIAL IS NOT AVAILABLE FOR PHOTOCOPYING

The previous practice of the Document Services Division in handling customer's requests for certified copies of material not yet processed in the Application Division has been to return the order to the customer requesting him to reorder 30 days after receipt of his Official Filing Receipt.

In order to improve this procedure, as of August 2, 1971, all requests for certified copies of material that has not been processed in the Application Division and has not been placed on microfiche are processed in the following manner.

1. Each order is given a control number.
2. The customer is notified as follows:

   a. He will receive an acknowledgment of the receipt of his order.
   b. He will be given the assigned control number for ease of reference in case an inquiry is necessary.
   c. He will be informed that his order will be held in the Document Services Division until the copy can be reproduced from microfiche. No definite time can be given.

3. An Advance Order File has been set up in the Service Unit of the Document Services Division and the microfiche is checked daily.

For further service to its customers, the Document Services Division will furnish the Serial Number and Filing Date of the latest application available on microfiche for publication in the OFFICIAL GAZETTE.

ROBERT J. RISH,
Aug. 2, 1971. *Acting Assistant Commissioner for Administration.*

[890 O.G. 301]

(26) PUBLIC RECORDS CERTIFICATION DESK

The certification desk, located in Crystal Plaza in the Attorneys and Record Room, Building 4, Room 1D01, provides "on-the-spot" certifying service. This desk handles walk-in requests for certified copies of file wrappers, patented applications, patents, and selected papers from patented application files. The usual fee for this service (1.00 per certification) may be applied at this location in the form of a paid cash order form, obtainable at the Cashier's Office adjacent the lobby of building #2.

ROBERT GOTTSCHALK,
Nov. 26, 1971. *Acting Commissioner of Patents.*

[893 O.G. 810]

(27) CUSTOMER RELATIONS CENTER

A Customer Relations Center, located in Crystal Plaza adjacent to the Public Search Room, Building 4, Rooms A102 and A103, has been established to provide a central customer complaint and inquiry service. The Center is staffed with six highly experienced employees who process inquiries concerning copies of U.S. patent documents previously ordered but not received. This Center handles not only walk-in but telephonic, and written requests for assistance as well. In addition to improving customer relations, this service is intended to relieve the primary customer service areas (Patent Copy Sales, Document Services, and Reference Order Branch), and Patent Office officials, or interruptions and irregular demands on their time.

The telephone number for this service is (703) 557–2003.

ROBERT GOTTSCHALK,
Nov. 26, 1971. *Acting Commissioner of Patents.*

[893 O.G. 807]

(35) ACCESSIBILITY OF ASSIGNMENT RECORDS

In view of a number of inquiries as to the manner in which Rule 1.12 of the Patent Office Rules of Practice, as amended August 23, 1965 (819 O.G. 443) is to be applied, the procedure which it is planned to follow in certain types of cases is set forth below.

1. Assignments relating to applications for registration of trademarks will be open to public inspection as heretofore.

2. The Office will not open certain parts only at an assignment document to public inspection. If such a document contains two or more items, any one of which, if alone, would be open to such inspection, then the entire document will be open. Thus, if an assignment covers either a trademark or a patent in addition to one or more patent applications, it will be available to the public ab initio; and if it covers a number of patent applications, it will be so available as soon as any one of them is patented. Assignments relating only to one or more pending applications for patent will not be open to public inspection.

3. If the application on which a patent was granted is a division or continuation of an earlier case, the assignment records of that case will be open to public inspection; similar situations involving continuation in part applications will be considered on their individual merits.

4. Assignment records relating to reissue applications will be open to public inspection.

EDWARD J. BRENNER,
Dec. 15, 1965. *Commissioner.*

[822 O.G. 769]

(43) REVISION OF "DISCONTINUANCE OF DEPOSIT ACCOUNT SERVICE FOR SALE OF PATENT COPIES"

In view of the difficulties experienced by many of its customers, the Patent Office is revising the Notice appearing in the December 1, 1964, issue of the *Official Gazette of the U.S. Patent Office.* This Notice—Discontinuance of Deposit Account Service for Sale of Patent Copies—is revised to except certain types of patent copy orders.

The Patent Office will now accept lists of fifty (50) or more numbers arranged in numerical sequence to be charged to Deposit Accounts. Service charges, such as Special Handling and Air Mail postage for these orders, may also be charged to Deposit Accounts.

C. A. KALK,
July 15, 1965. *Director of Administration.*

[818 O.G. 1207]

(45) DEPOSIT ACCOUNTS—STATUTORY FEE CHARGES

Beginning on May 1, 1966, and until further notice, statutory fees, including filing fees for patent, design, and trademark applications, issue fees, appeal fees and opposition, cancellation and petition fees may be charged against the deposit accounts provided for by Rule 25(a) of the Rules of Practice in patent cases. During this period the prohibition of Rule 25(b) against such charges will be suspended.

In view of the facts that these fees are indispensable parts of the actions to which they relate and that the charging of a fee against an account which does not contain sufficient funds to cover it cannot be regarded as a payment of the fee, it is evident that the overdrawing of a deposit account may result in the loss of a vital date and may also impose a substantial burden on the Patent Office in making appropriate correction of its records. It is, therefore, necessary that effective steps be taken to avoid such overdrafts, as follows:

Checks of all accounts will be made periodically, and if any account is found to have been overdrawn, it will be immediately removed from the active accounts and no further drafts on it will be honored. Prompt payment of the outstanding balance will be required and the depositor or his attorney may be called on for an itemized statement identifying all statutory fees charged against the account during the period in question in order that it may be ascertained whether any previously granted date should be withdrawn.

It is emphasized that the success of the procedure outlined above depends upon the maintenance of a sufficient balance in deposit accounts at all times to meet any charges made against them. The Office must, therefore, strictly refuse to permit any depositor who has once overdrawn his account to maintain such an account in the future and in the event that any substantial number of overdrafts occurs it may be necessary to reestablish the prohibition of Rule 25(b) against charging statutory fees against deposit accounts.

Accordingly, effective May 1, 1966, the requirement of Rule 25(a) that an amount sufficient to cover all charges made against an account must always be on deposit will be strictly enforced, regardless of whether any fee is included in such charges and where this requirement is not complied with the account involved will be removed from the active accounts.

EDWARD J. BRENNER,
Feb. 23, 1966. *Commissioner.*

[824 O.G. 1200]

(46) PRACTICE IN THE USE OF ACCOUNTS FOR PAYMENT OF STATUTORY FEES

In the OFFICIAL GAZETTES of March 15, 22, and 29, there appeared copies of an announcement by the Commissioner providing for a trial use of accounts established under Rule 25 for the payment of statutory fees. A number of questions have come up in connection with the use of accounts in the payment of these fees prescribed by Public Law 89–83 and, in the interest of uniform practice, publication of a statement is warranted.

A general direction by an applicant or attorney to charge to an account these fees as they arise in any application prosecuted by the applicant, the attorney, or the firm will not be effective for such a purpose. Authority to make charges will be limited to a particular application.

A separate direction to charge shall be filed for each fee. Each such direction to charge a fee shall be transmitted on a separate sheet of paper and, in the case of fees based on modification of claims shall include the best estimate of the fee due. Failure to include such an estimate provides the basis for a refusal to enter any amendment transmitted therewith, as an incomplete response. Where variable fees are involved inclusion of a direction to charge or credit a deficiency or overpayment would appear appropriate.

An issue fee will be charged to an account until a notice of allowance has been forwarded and a reply to that notice received.

For the purposes of determining the fee due the Patent Office, a claim will be treated as dependent if it contains reference to one other claim in the application. A claim determined to be dependent by this test will be entered if the fee paid reflects this determination. This does not, however, prevent the rejection of such a claim as improper, if, in fact, it is not a dependent claim.

EDWARD J. BRENNER,
Apr. 12, 1966. *Commissioner of Patents.*

[825 O.G. 1183]

(48) DEPOSIT ACCOUNTS

The practice instituted on May 1, 1966, pursuant to the notice of February 23, 1966 (824 O.G. 1200), whereby statutory fees may be charged against deposit accounts, and such accounts are closed if overdrawn, has resulted in certain difficulties for the Patent Office and deposit account holders. It has been decided therefore to modify that practice as indicated below.

As was pointed out in that notice, the charging of a fee against an overdrawn account cannot be considered as payment of the fee until a proper balance is restored or payment is made in some other way. Accordingly, deposit account holders who charge such fees must assume the risk of losing vital dates if they do not maintain a proper balance in their accounts at all times.

Apart from this, however, the overdrawing of an account places a burden on the Patent Office, particularly where a number of items are charged after the overdraft occurs, and it is appropriate that those who are responsible for causing such a condition should bear the cost of correcting it. In view of this fact, and of the hardship frequently caused if an account is permanently closed, the practice of closing deposit accounts merely because they are overdrawn will be discontinued, effective August 1, 1966. In lieu thereof an overdrawn account will be immediately suspended and no charges will be accepted against it until a proper balance is restored, together with a payment of ten dollars to cover the work done by the Patent Office incident to suspending and reinstating the account and dealing with charges which may have been made in the meantime. It is expected, however, that reasonable precautions will be taken in all cases to avoid overdrafts, and if an account is suspended repeatedly it will be necessary to close it.

Similarly, because of the burden placed on the Patent Office incident to the operation of deposit accounts, a charge of ten dollars will be made for opening each new account.

EDWARD J. BRENNER,
June 23, 1966. *Commissioner.*

[828 O.G. 377]

(181) EMERGENCY SITUATION IN THE U.S. POSTAL SERVICE

In view of the present emergency situation in U.S. postal service, the U.S. Patent Office is taking the following actions.

In regard to pending applications, the time for taking any action or paying any fee expiring during the period beginning March 16, and ending April 15, 1970, both dates inclusive, is hereby extended for ONE MONTH. However, no extension shall exceed a maximum period for response provided for in the Statutes.

U.S. Department of Commerce Field Offices have been designated, on an emergency basis, as receiving stations for the U.S. Patent Office. All papers should be enclosed in a sealed envelope and deposited in a Field Office. Such papers will be considered as received in the U.S. Patent Office on the day of deposit. The Field Office will date stamp each envelope so deposited, and applicants or their representatives should assure the legibility of the date stamp. Field Offices will place a corresponding date stamp on receipt cards provided by the depositor, which must completely identify the papers deposited.

Field Office deposits should, if possible, be limited to such papers wherein the Patent Statutes do not provide a remedy for failure to obtain a particular date. Examples of these types of papers are: checks in payment of issue fees, new application papers wherein priority dates or statutory bars may be involved, amendments where the six month statutory period for response is about to expire, etc.

The Field Office in New York designated to receive papers for the U.S. Patent Office is located at:

41st Floor, Federal Office Bldg.
26 Federal Plaza, Foley Square
New York, N.Y.

The designated Field Office in Hartford, Connecticut is located at:

Room 610–B Federal Office Bldg.
450 Main St.
Hartford, Conn.

The addresses of Field Offices in other cities are listed in local directories and are available upon inquiry to the Commissioner of Patents.

RICHARD A. WAHL,
Mar. 19, 1970. *Acting Commissioner of Patents.*

[872 O.G. 1383]

(182) PATENT OFFICE—POSTAL SERVICE

In view of the return to normal operations of the United States postal service, the Notice of Mar. 19, 1970 (published in the OFFICIAL GAZETTE of Mar. 24, 1970, vol. 872, No. 4) is hereby revised.

After Apr. 15, 1970, the U.S. Department of Commerce Field Offices will no longer be designated as receiving stations for the U.S. Patent Office. Accordingly, after the abovenoted date, all letters or other papers relating to patent and trademark cases will be considered as received in the U.S. Patent Office only if they are filed in accordance with Rule 6 of the Rules of Practice in Patent Cases as amended Nov. 26, 1969.

All other provisions of the Notice of Mar. 19, 1970 and the Notice of Mar. 26, 1970, relating to Trademarks, remain in effect.

WILLIAM E. SCHUYLER, JR.
Mar. 27, 1970. *Commissioner of Patents.*

[873 O.G. 319]

(183) FILE HISTORY OF APPLICATIONS AFFECTED BY POSTAL EMERGENCY

As a result of the postal emergency, the time for taking any action or paying any fee in the U.S. Patent Office expiring between the dates of March 16, 1970 and April 15, 1970, both dates inclusive, was automatically extended for one month, provided it did not exceed a maximum period for response provided in the Statutes. (See O.G. of March 24, 1970 or March 31, 1970, 872 O.G. 1383 and April 7, 1970, 873 O.G. TM 2.)

Since this extension of time was automatic there will be nothing in the individual files to indicate that a paper filed during that period was, in fact, timely though it was received later than its apparent due date.

In order to provide a complete history in the affected files and to dispel any question as to abandonment in the record of a patented file, applicants or their attorneys are requested to file a paper explaining these circumstances. A separate paper should be filed in each case so affected (identified by Serial No., filing date, title and applicant's name) and may be merely a copy of the notice which authorized the one-month extension or should specifically refer to and identify that notice.

RICHARD A. WAHL,
Apr. 27, 1970. *Assistant Commissioner of Patents.*

[874 O.G. 688]

(184) U.S. DEPARTMENT OF COMMERCE FIELD OFFICES TO SERVE AS RECEIVING STATIONS ONLY IN DECLARED EMERGENCIES

During the recent postal emergency, Field Offices of the U.S. Department of Commerce were designated as receiving stations for the U.S. Patent Office (according to the Notices of March 19, 1970, 872 O.G. 1383 and March 26, 1970, 873 O.G. TM 2). In view of the subsequent resumption of normal postal operations, that emergency arrangement was discontinued in accordance with the notice of March 27, 1970, 873 O.G. 319. After April 15, 1970, the normal practice with respect to the filing of all letters and other papers relating to patent and trademark matters in the U.S. Patent Office was resumed.

The Patent Office has received suggestions proposing that the Field Offices continue to serve as receiving stations for the U.S. Patent Office. These suggestions have received careful and sympathetic consideration. However, it has been concluded that any activities of the Field Offices in this connection must be restricted, in the future, to any emergency officially announced by the Patent Office as requiring such action.

RICHARD A. WAHL,
Apr. 27, 1970. *Acting Commissioner of Patents.*

[874 O.G. 688]

---

(185) PATENTS AND TRADEMARKS

Relief in Cases Affected by the Postal Emergency of March 1970

On June 30, 1971, President Nixon signed into law Public Law 92–34.

Public Law 92–34 requires claims for the benefit of an earlier filing date (Section 1.) and requests for such other relief as may be appropriate (Sec. 2.) to be filed in the Patent Office within 6 months after enactment, that is by December 30, 1971. Failure to file a statement within the noted period will result in loss of right to take advantage of the benefits of the law. Further explanation or evidence may be required at a subsequent time. Public Law 92–34 provides relief only for situations caused by the postal emergency which began on March 18, 1970, and ended on or about March 30, 1970, and for which there is no remedy under existing law.

The following explanation is designed to serve as a guide for persons desiring relief under the law.

The verified statement required to be filed under sections 1 and 2 of the law may be by any of the following:

(a) Applicant(s) for patent or trademark registration;
(b) Patentee(s) or trademark registrant;
(c) Owner(s) of record.

In cases involving plural inventors, statements made under (a) or (b) must be signed by all inventors.

The verified statement must specify the particular earlier date of receipt in the Patent Office to which the applicant, patentee or trademark registrant, or owner of record believes his application, fee or other paper would be entitled except for the delay caused by the postal emergency of March, 1970. The statement must be verified, that is, in the form of an oath or declaration. (37 CFR 1.68 (Patent Rule 68) and 2.20 (Trademark Rule 2.20).)

Evidence will not normally be required or considered by the Patent Office regarding a claimed filing date of March 18, 1970, or later, in applications actually filed before June 1, 1970. Claims for earlier filing dates in cases actually filed after June 1, 1970, or claiming a date prior to March 18, 1970, will be considered prima facie unreasonable unless an acceptable explanation of the basis for the claim is filed in the Patent Office with the claim or within 1 month or such longer time as may be prescribed by the Commissioner. Any claim not accepted by the Patent Office because it is obviously defective on its face or unreasonable may be subjected to further review by petition to the Commissioner.

The statement should adequately identify the involved application, patent, or trademark registration by including the name of the applicant, patentee or registrant, title of the invention or an identification of the mark, serial number, filing date, group art unit number and any other identifying data such as status of the case (e.g., awaiting first action, amendment, brief, etc.). Acceptable statements will be acknowledged, made of record and retained in the Patent Office files.

When practical, earlier filing dates accorded under this law, as well as the originally granted filing dates, will be identified on ensuing patents and trademark registrations. These dates will also be included in the OFFICIAL GAZETTE in connection with patents, trademark registrations and trademarks published for opposition. In other cases, such as applications in issue prior to filing of a claim, the patent or trademark registration number and claimed filing dates will be published in the OFFICIAL GAZETTE after December 30, 1971.

Patents issued with earlier filing dates afforded by this law will not be effective as prior art as of such earlier filing dates under subsection 102(e) of title 35 of the United States Code.

In a pending patent application in which a claim for an earlier filing date has been acknowledged under this law, applicants need not file a Rule 131 affidavit to overcome a reference having an effective filing date between the "earlier" and the actual filing date of the application. Intervening references of this type will be cited but not applied by the examiner. Although a statement claiming an earlier date is accepted by the Patent Office, the claimed earlier date may be called into question in subsequent inter partes proceeding in the Patent Office or in the courts. In these proceedings, the applicant or owner may be required to present further evidence establishing the filing date to which the application is entitled. In such cases a definite determination shall be made as to whether the applicant is entitled to the earlier date under the law.

In cases where a patent application or an application for registration or late renewal of a trademark is determined to have become abandoned for failure to meet a statutory time limit because of the postal emergency, the application will automatically be restored to pending status by the acceptance of the request, and prosecution or other processing of the application will be resumed. Similarly, if a trademark registration is determined to have been cancelled for failure to meet the statutory time limit within which to file the affidavit required under section 8 of the Trademark Act (15 U.S.C. 1058a) because of the said emergency, the order for cancellation will be rescinded.

As explained in the notice of January 26, 1971 (882 O.G. 1342), applicants who may be entitled to earlier filing dates should note that a change in their U.S. filing date might, in turn, alter the date of expiration of the 6- and 12-month periods for filing applications abroad under provisions of the Paris Convention for the Protection of Industrial Property.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Dated: July 14, 1971.
JAMES H. WAKELIN, JR.,
Assistant Secretary for Science and Technology.

[FR Doc. 71–10469; Filed 7–22–71; 8:52 a.m.]

36 F.R. 13694; July 23, 1971

[889 O.G. 1064]

---

(193) CHANGE IN LEGAL HOLIDAYS

Those doing business before the Patent Office are hereby reminded that by Public Law 90–363, 82 Stat. 250, effective January 1, 1971, Section 6103(a) of Title 5, United States Code, was amended to read as follows:

§ 6103. *Holidays*

(a) The following are legal public holidays:
New Year's Day, January 1.
Washington's Birthday, the third Monday in February.
Memorial Day, the last Monday in May.
Independence Day, July 4.
Labor Day, the first Monday in September.
Columbus Day, the second Monday in October.
Veterans Day, the fourth Monday in October.
Thanksgiving Day, the fourth Thursday in November.
Christmas Day, December 25.

Each of the holidays enumerated will constitute "a holiday within the District of Columbia," as referred to in Section 21, Title 35, United States Code.

WILLIAM E. SCHUYLER, JR.,
Dec. 2, 1970. *Commissioner of Patents.*

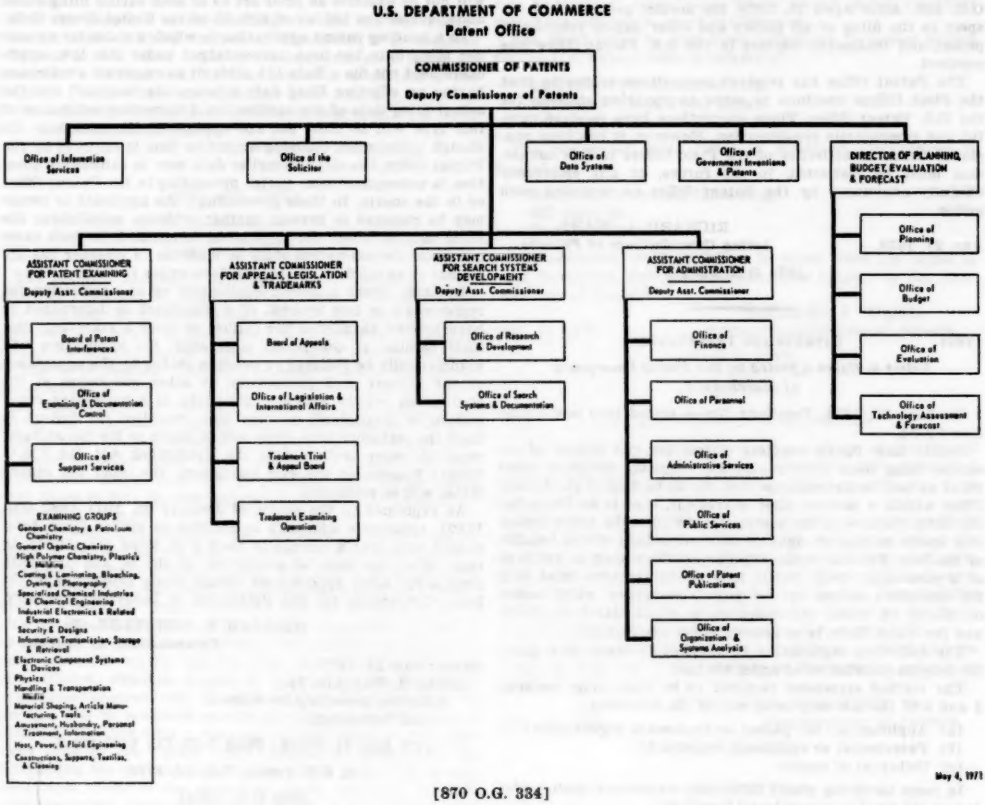
[881 O.G. 1707]

(212) ORGANIZATION OF THE PATENT OFFICE

The accompanying block type organization chart printed herein shows the present organization of the Patent Office. It is based upon Department of Commerce Organization Order 30–3B, which explains the functions of the several units comprising the organization set forth in the chart. The Order is published following the chart.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

December 18, 1969.


U.S. DEPARTMENT OF COMMERCE
Patent Office
COMMISSIONER OF PATENTS
Deputy Commissioner of Patents
Office of Information Services
Office of the Solicitor
Office of Data Systems
Office of Government Inventions & Patents
DIRECTOR OF PLANNING, BUDGET, EVALUATION & FORECAST
Office of Planning
Office of Budget
Office of Evaluation
Office of Technology Assessment & Forecast
ASSISTANT COMMISSIONER FOR PATENT EXAMINING
Deputy Asst. Commissioner
Board of Patent Interferences
Office of Examining & Documentation Control
Office of Support Services
EXAMINING GROUPS
General Chemistry & Petroleum Chemistry
General Organic Chemistry
High Polymer Chemistry, Plastics & Molding
Coating & Laminating, Bleaching, Dyeing & Photography
Specialized Chemical Industries & Chemical Engineering
Industrial Electronics & Related Elements
Security & Designs
Information Transmission, Storage & Retrieval
Electronic Component Systems & Devices
Physics
Handling & Transportation Media
Material Shaping, Article Manufacturing, Tools
Amusement, Husbandry, Personal Treatment, Information
Heat, Power, & Fluid Engineering
Construction, Supports, Textiles, & Cleaning
ASSISTANT COMMISSIONER FOR APPEALS, LEGISLATION & TRADEMARKS
Board of Appeals
Office of Legislation & International Affairs
Trademark Trial & Appeal Board
Trademark Examining Operation
ASSISTANT COMMISSIONER FOR SEARCH SYSTEMS DEVELOPMENT
Deputy Asst. Commissioner
Office of Research & Development
Office of Search Systems & Documentation
ASSISTANT COMMISSIONER FOR ADMINISTRATION
Deputy Asst. Commissioner
Office of Finance
Office of Personnel
Office of Administrative Services
Office of Public Services
Office of Patent Publications
Office of Organization & Systems Analysis
May 4, 1971

[870 O.G. 334]

PATENT OFFICE NOTICES

Board of Appeals Decisions Rendered in the Month of November 1972

Examiner affirmed	159
Examiner affirmed in part	21
Examiner reversed	40
Total	220

Patent Suits

Notices under 35 U.S.C. 290; Patent Act of 1952

3,080,264, Zimmie and Bloecher, METHOD OF REMOVING SILT FROM TANKS; **3,085,916,** same, METHOD OF REMOVING AND PREVENTING ACCUMULATION IN COOLING SYSTEMS, **filed** July 18, 1972, D.C., S.D. Ohio (Cincinnati), Doc. 7819, *W. E. Zimmie, Inc.* v. *Ohio Valley Chemical Corp. and Charles J. Kennedy.* Consent judgment. Plaintiff owner of patents, defendants permanently enjoined. July 20, 1972.

3,085,916. (See 3,080,264.)

3,216,609, C. Bogert, CAN CLOSURE, **filed** July 24, 1972, D.C. Conn. (Bridgeport), Doc. B–555–C, *Farley Investments, Ltd.* v. *American Can Company.*

3,367,126, J. D. Howell, FLOATING AGITATOR; **3,381,302,** Reimus and Saporito, FREEZE CONCENTRATION OF COFFEE EXTRACT; **3,404,007,** J. G. Muller, FREEZE DRIED COFFEE PROCESS AND PRODUCT; **3,449,129,** Reimus and Saporito, CONCENTRATION PROCESS; **3,474,723,** same, BEVERAGE APPARATUS; **3,495,522,** J. G. Muller, same; **3,531,295,** N. Ganiaris, FREEZE CONCENTRATION OF COFFEE EXTRACT; **3,620,034,** same, MULTI-STAGE FREEZE CONCENTRATION OF COFFEE; **3,632,353,** Reimus and Saporito, REMOVAL OF TARS AND WAXES IN FREEZE CONCENTRATION OF COFFEE; **3,636,722,** N. Ganiaris, CONCENTRATION OF COFFEE, **filed** Apr. 13, 1972, D.C.N.J. (Newark), Doc. 663–72, *Struthers Patent Corporation* v. *Nestle Company, Inc.*; filed Apr. 13, 1972, D.C., N.D. Ga. (Atlanta), Doc. 16467, *Struthers Patent Corporation* v. *The Coca-Cola Company.*

3,381,302. (See 3,367,126.)

3,404,007. (See 3,367,126.)

3,404,494, H. D. Wolfe, THEATRE AND STATE CONSTRUCTION, **filed** *June* 23, 1972, D.C., W.D. Va. (Roanoke), Doc. 72–C–86–R, *H. D. Wolfe* v. *S. Belkin.*

3,410,330, J. Matyas, FOLDING DOOR CONSTRUCTION, **filed** Feb. 4, 1969, D.C., E.D. Mich. (Detroit), Doc. 32306, *J. Matyas, doing business as Alliance Metal Products* v. *Great Lakes Hardware.* Stipulated order of dismissal signed by Hon. Charles Joiner, July 20, 1972.

3,447,351, C. W. Werntz, ROLL FORMING MACHINE INCLUDING DIVIDED ROLL PARTS AND SPACERS THEREFOR, **filed** May 18, 1971, D.C., E.D. Mo. (St. Louis), Doc. 71–C–314 (2), *Engel Industries, Inc.* v. *The Lockformer Company.* Order entered Feb. 18, 1972 hereby set aside and Clerk is ordered to enter a new judgment in favor of defendant and against plaintiff, May 22, 1972.

3,449,129. (See 3,367,126.)

3,458,783, M. A. Rosenberg, HERMETICALLY SEALED CAPACITOR, **filed** Sept. 10, 1971, D.C., W.D. Pa. (Erie), Doc. 108–71 Erie, *San Fernando Electric Manufacturing Co., Inc.* v. *Erie Technological Products, Inc.* Order entered approving consent judgment, July 13, 1972.

3,472,309, A. Calderon, METHOD OF AND APPARATUS FOR CONTINUOUSLY CASTING STEEL, **filed** July 20, 1972, D.C., E.D. Mich. (Detroit), Doc. 38618, *Calderon Automation, Inc.* v. *General Motors Corp.*

3,474,723. (See 3,367,126.)

3,481,228, Dickmann, Flick and Palmer, POWER TONG ASSEMBLY AND CONTROL MEANS THEREFOR; **3,481,229,** Dickmann and Palmer, POWER TONG ASSEMBLY AND TRANSMISSION MEANS THEREFOR, **filed** June 20, 1972, D.C., S.D. Tex. (Houston), Doc. 72–H–811, *Byron Jackson, Inc.* v. *Peck Sales & Service, Inc.*

3,481,229. (See 3,481,228.)

3,495,522. (See 3,367,126.)

3,511,208, O. C. Woodruff, FISHING RIG, **filed** Feb. 17, 1972, D.C., W.D. Okla. (Oklahoma City), Doc. 72–104–C, *Jamajo Industries, Inc.* v. *Speegle-Horaney, Inc.* Parties settled. Case dismissed with prejudice, Judge Chandler, June 26, 1972.

3,531,295. (See 3,367,126.)

3,552,051, E. B. Ritchey, EAR TAG, **filed** Nov. 11, 1971, D.C. Minn. (St. Paul), Doc. 3–71–C–277, *E. B. Ritchey* v. *Fearing Manufacturing Co., Inc.*

3,561,093, B. Gulistan, METHOD OF ATTACHING A SLEEVE TO A WORKPIECE, **filed** July 17, 1972, D.C., C.D. Calif. (Los Angeles), Doc. 72–1632–IH, *Southco, Inc.* v. *Deutsch Fastner Corp.*

3,588,095, Ward, Ward and Bachmann, SUCTION TABLE SYSTEM FOR FEEDING OF WARPED SHEETS, **filed** July 14, 1972, D.C.N.J. (Newark), Doc. C–1195–72, *The Ward Machinery Company (formerly The Ward-Turner Machinery Company)* v. *W. C. Hawthorne and Associates.*

3,594,255, W. D. Budinger, HICKEY ROLLER AND METHOD; **3,635,158,** same, ROLLER FOR PRINTING PRESS, **filed** June 1, 1972, D.C., N.D. Ill. (Chicago), Doc. 72c1372, *Rodel, Inc. and W. D. Budinger* v. *American Roller Co.*

3,598,064, E. H. Stempel, SHELVING, **filed** Oct. 1, 1971, D.C., S.D. Fla. (Miami), Doc. 71–1527–C–EC, *Belaco, Inc.* v. *Advance Metal Products, Inc. and Air-Flor Shelving Systems, Inc.* Cause dismissed on stipulation, claim of Belaco, Inc. dismissed pursuant to stipulation without prejudice, counterclaim of Advance Metal Products, Inc. and Air-Flor Shelving Systems, Inc. dismissed without prejudice, June 2, 1972.

3,620,034. (See 3,367,126.)

3,635,158. (See 3,594,255.)

3,636,722. (See 3,367,126.)

Re. 25,536, D. T. Thompson, APPARATUS FOR MAKING AN ANNULUS, **filed** July 7, 1972, D.C., N.D. Ill. (Chicago), Doc. 72c1669, *Thompson Bagel Machine Mfg. Corp.* v. *Atwood Corp.*

Re. 26,163, B. F. W. Heyer, ENGINE PARAMETER ANALYZER, **filed** Jan. 14, 1972, D.C., N.D. Ill. (Chicago), Doc. 72c124, *Applied Power Industries, Inc.* v. *Sun Electric Corporation.* Cause removed from active calendar with leave to reinstate on or before Aug. 18, 1972. Further ordered that cause be continued to Aug. 18, 1972 for report on status, June 13, 1972.

D. 210,842, R. Genin, TOY CEMENT MIXER, **filed** Sept. 26, 1968, D.C., S.D.N.Y., Doc. 68–C–3831, *Child Guidance Toys, Inc.* v. *R. H. Macy & Co., Inc.* Order of dismissal for lack of prosecution with prejudice. Judge Canella, July 19, 1972.

D. 211,156, J. H. Wilson, JAR, **filed** May 10, 1972, D.C., S.D.N.Y., Doc. 72–C–2009, *The Nestle Company* v. *General Foods Corp.*

D. 212,372, Trimble and Rottman, GOAL POST, **filed** Dec. 28, 1971, D.C., M.D. Fla. (Tampa), Doc. 71–574–C–T, *Triman Tele-Goal, Inc.* v. *Pinellas County School Board et al.*

D. 212,722, R. D. Kahn, FLASHING SIGNAL UNIT, **filed** July 30, 1969, D.C., E.D.N.Y. (Brooklyn), Doc. 69C938, *Fedtro, Inc.* v. *Osrow Products Co., Inc. et al.* Consent judgment, May 24, 1972.

D. 213,609, C. C. Giannoulis, COAT, **filed** Apr. 22, 1969, D.C., S.D.N.Y., Doc. 69–1683, *Sidney Ellis Associates, Inc.* v. *Lilli Ann Corporation.* Stipulation and order, dismissed with prejudice, June 22, 1972.

D. 222,104, K. G. Logan, VEHICLE SAFETY LIGHT AND BRACKET THEREFOR, filed June 19, 1972, D.C., N.D. Iowa (Fort Dodge), Doc. 72–C–2017–C, *Saflite Corp.* v. *Eugene Ryerson, Rycol Corp. and Manco, Inc.*

D. 224,106, F. Baranowski, Jr., PRESSURE REGULATOR, filed July 5, 1972, D.C., D. Mass. (Boston), Doc. 72–2081–L.C., *F. Baranowski, Jr.* v. *Wingaersheek Turbine Co., Inc.*

D. 221,351, B. G. Remington, LIGHTING FIXTURE FOR RECREATIONAL VEHICLES, BOATS OR THE LIKE, filed June 19, 1972, D.C., N.D. Ill. (Chicago), Doc. 72c1514, *Progressive Dynamics* v. *Triangle Products.*

Certificates of Correction for the Week of Jan. 2, 1973

Re. 27,356	3,660,566	3,673,262	3,678,418
D. 221,639	3,661,423	3,673,263	3,678,435
3,455,731	3,661,473	3,673,285	3,678,445
3,496,139	3,661,776	3,673,325	3,678,502
3,530,074	3,661,965	3,673,575	3,678,726
3,553,000	3,662,368	3,673,840	3,678,805
3,576,464	3,663,074	3,673,843	3,678,922
3,579,484	3,663,637	3,673,912	3,678,939
3,583,423	3,663,955	3,674,115	3,679,065
3,600,098	3,664,287	3,674,394	3,679,321
3,603,954	3,664,640	3,674,501	3,679,383
3,608,745	3,664,642	3,674,502	3,679,458
3,609,411	3,664,730	3,674,683	3,679,519
3,611,973	3,665,021	3,674,791	3,679,575
3,612,783	3,665,524	3,674,963	3,679,662
3,615,663	3,665,544	3,675,037	3,679,665
3,616,850	3,666,436	3,675,085	3,679,678
3,618,046	3,666,649	3,675,158	3,679,707
3,618,652	3,666,664	3,675,317	3,679,738
3,620,673	3,666,667	3,675,325	3,679,772
3,620,749	3,666,693	3,675,480	3,680,040
3,622,295	3,667,058	3,675,911	3,680,416
3,627,927	3,667,199	3,675,935	3,680,605
3,629,336	3,667,244	3,676,021	3,680,609
3,631,151	3,667,249	3,676,025	3,680,612
3,632,652	3,667,357	3,676,028	3,680,675
3,637,287	3,667,403	3,676,080	3,680,803
3,637,794	3,667,618	3,676,123	3,680,980
3,641,242	3,667,913	3,676,168	3,681,140
3,641,279	3,668,270	3,676,267	3,681,213
3,641,331	3,668,662	3,676,391	3,681,349
3,642,482	3,668,849	3,676,421	3,681,422
3,642,504	3,669,758	3,676,621	3,681,428
3,643,818	3,669,931	3,676,829	3,681,471
3,645,859	3,670,006	3,676,970	3,681,488
3,646,300	3,670,042	3,677,206	3,681,561
3,646,573	3,670,283	3,677,444	3,681,709
3,646,574	3,670,171	3,677,461	3,681,939
3,647,737	3,670,371	3,677,533	3,682,318
3,649,729	3,670,446	3,677,643	3,682,775
3,651,481	3,670,958	3,677,701	3,683,494
3,653,743	3,671,293	3,677,724	3,683,693
3,653,876	3,671,501	3,677,778	3,684,119
3,655,628	3,671,528	3,677,795	3,689,446
3,656,064	3,671,725	3,677,804	3,690,229
3,656,931	3,671,740	3,677,838	3,690,429
3,657,391	3,672,172	3,677,895	3,690,454
3,658,496	3,672,210	3,677,942	3,690,539
3,658,646	3,672,748	3,677,948	3,692,230
3,658,732	3,672,778	3,678,029	3,692,357
3,659,315	3,672,869	3,678,049	3,692,515
3,659,652	3,673,009	3,678,091	3,693,256
3,660,223	3,673,205	3,678,098	3,693,455
3,660,482	3,673,254	3,678,134	3,698,219

Disclaimers

3,012,303.—*Ralph Whitaker*, Philadelphia, Pa., *Ralph Whitaker, Jr.*, Raleigh, and *Frank E. Whiting*, Garner, N.C. PRODUCTION OF MULTICOLORED PILE FABRIC. Patent dated Dec. 12, 1961. Disclaimer filed May 5, 1972, by the assignee, *Fred Whitaker Company*.

Hereby enters this disclaimer to claim 5 of said patent.

3,172,289.—*Seymour N. Blackman*, Englewood, N.J. GLASS THERMOMETER. Patent dated Mar. 9, 1965. Disclaimer filed May 17, 1972, by the inventor.

Hereby enters this disclaimer to claims 2, 4 and 6 of said patent.

3,345,589.—*Gerald C. Di Piazza*, Lake Hiawatha, N.J. TRANSMISSION LINE TYPE MICROWAVE FILTER. Patent dated Oct. 3, 1967, Disclaimer filed June 5, 1972, by the assignee, *Bell Telephone Laboratories Incorporated*.

Hereby enters this disclaimer to claims 1, 4 and 7 of said patent.

3,347,365.—*Garland B. Funkhouser*, Waynesboro, Va. PACKAGE CONSTRUCTION AND METHOD OF MAKING THE SAME OR THE LIKE. Patent dated Oct. 17, 1967. Disclaimer filed Apr. 24, 1972, by the assignee, *Reynolds Metals Company*.

Hereby enters this disclaimer to claims 1, 2, 4, 5, 6, 8, 10, 11, 12, 14, 15, 16, 18 and 20 of said patent.

3,368,039.—*Genung L. Clapper*, Vestal, N.Y. SPEECH ANALYZER FOR SPEECH RECOGNITION SYSTEM. Patent dated Feb. 6, 1968. Disclaimer filed Oct. 30, 1972, by the assignee, *International Business Machines Corporation*.

Hereby enters this disclaimer to claims 1 and 8 of said patent.

3,438,147.—*Stanley C. Lander*, Aurora, Ill. DISCONNECT FOR DOORS. Patent dated Apr. 15, 1968. Disclaimer filed Apr. 28, 1972, by the assignee, *White Consolidated Industries, Inc.*

Hereby enters this disclaimer to claims 1, 2, 3, 11, 12 and 13 of said patent.

3,511,793.—*James Burnett Ezell*, Richmond, Va. MODIFIED VINYLIDENE CHLORIDE COPOLYMER COATING COMPOSITION. Patent dated May 12, 1970. Disclaimer filed May 31, 1972, by the assignee, *E. I. du Pont de Nemours and Company*.

Hereby enters this disclaimer to all claims of said patent.

3,591,274.—*Philip Joseph Donald*, Woodbury, N.Y. PROJECTION OF COLOR-CODED B AND W TRANSPARENCIES. Patent dated July 6, 1971. Disclaimer filed May 12, 1972, by the assignee, *RCA Corporation*.

Hereby enters this disclaimer to all claims of said patent.

3,601,812.—*Joseph A. Weisbecker*, Cherry Hill, N.J. MEMORY SYSTEM. Patent dated Aug. 24, 1971. Disclaimer filed May 4, 1972, by the assignee, *RCA Corporation*.

Hereby enters this disclaimer to claims 1 through 7 and 19 through 21 of said patent.

3,603,588. *John W. Ebstein*, Roslyn Heights, N.Y. BASKETBALL GOAL. Patent dated Sept. 7, 1971. Disclaimer filed Apr. 24, 1972, by the assignee *Gabriel Industries, Inc.*

Hereby enters this disclaimer to claim 5 of said patent.

3,644,180.—*Russell Burock*, Allentown, *David M. Swirsky*, Minersville, and *Robert A. Whitner*, Allentown, Pa. METHODS OF USING INORGANIC RESISTS. Patent dated Feb. 22, 1972. Disclaimer filed May 8, 1972, by the assignee, *Western Electric Company, Incorporated*.

Hereby enters this disclaimer to claims 1, 2 and 8 of said patent.

Dedications

3,084,064.—*Lewis M. Cowden*, Indianapolis, and *Joseph R. Clark*, Brownsburg, Ind. ABRADABLE METAL COATINGS AND PROCESS THEREFOR. Patent dated Apr. 2, 1963. Dedication filed May 25, 1972, by the assignee, *Union Carbide Corporation*.

Hereby dedicates to the Public the remaining term of said patent.

3,156,834.—*Albert L. Stillwell*, Green Brook, N.J. AUTOMATIC LEVEL CONTROL. Patent dated Nov. 10, 1964. Dedication filed June 5, 1972, by the assignee, *Bell Telephone Laboratories, Incorporated*.

Hereby dedicates to the Public the entire remaining term of said patent.

3,167,814.—*Herbert O. Corbett,* Canandaigua, N.Y. APPARATUS FOR FORMING BLOWN TUBULAR FILMS. Patent dated Feb. 2, 1965. Dedication filed, May 19, 1972, by the assignee, *National Distillers and Chemical Corporation.*

Hereby dedicates to the Public the entire term of said patent.

3,196,359.—*Adolph J. Giger,* Murray Hill, N.J. WIDE BAND CURRENT LIMITER. Patent dated July 20, 1965. Dedication filed June 5, 1972, by the assignee, *Bell Telephone Laboratories, Incorporated.*

Hereby dedicates to the Public the entire remaining term of said patent.

3,201,721.—*Rudolph W. Voelcker,* Greensboro, N.C. COAXIAL LINE TO STRIP LINE CONNECTOR. Patent dated Aug. 17, 1965. Dedication filed June 5, 1972, by the assignee, *Western Electric Company, Incorporated.*

Hereby dedicates to the Public the entire remaining term of said patent.

3,248,659.—*Adolph J. Giger,* Murray Hill, and *Arthur F. Perks,* Warren Township, Somerset County, N.J. HIGH EFFICIENCY DISCRIMINATOR. Patent dated Apr. 26, 1966. Dedication filed June 5, 1972, by the assignee, *Bell Telephone Laboratories, Incorporated.*

Hereby dedicates to the Public the entire remaining term of said patent.

3,278,808.—*Murray D. Bonfeld,* Fullerton, Pa. SUPERCONDUCTING DEVICE. Patent dated Oct. 11, 1966. Dedication filed June 5, 1972, by the assignee, *Bell Telephone Laboratories, Incorporated.*

Hereby dedicates to the Public the entire remaining term of said patent.

3,657,200.—*William Ross Moore* and *Ralph Rolland Langner,* Lake Jackson, Tex. COPOLYMERS OF SULFUR DIOXIDE WITH ALLYL EPOXYALKANE ETHERS. Patent dated Apr. 18, 1972. Dedication filed May 17, 1972, by the assignee, *The Dow Chemical Company.*

Hereby dedicates the remaining term of said patent to the free use of the People of the United States.

Errata

All reference to Patent Number 3,681,800 to Hermann Thoma, Swimming Aids, appearing in the OFFICIAL GAZETTE of Aug. 8, 1972, should be deleted as the application inadvertently issued.

All reference to Patent Number 3,702,074 to John S. Mullen, Pipe Line Leak Detection and Location System, appearing in the OFFICIAL GAZETTE of Nov. 7, 1972, should be deleted as the application inadvertently issued.

All reference to Patent Number 3,702,400 to Ronald I. Morley et al., Addressing Apparatus, appearing in the OFFICIAL GAZETTE of Nov. 7, 1972, should be deleted as the aforementioned patent is a duplication of Patent Number 3,688,112.

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner
WILLIAM FELDMAN, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF DECEMBER 12, 1972

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director. Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	10-18-71
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director. Heterocyclic, Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	9-07-71
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—L. J. BERCOVITZ, Director. Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	8-09-71
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director. Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	8-30-71
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. FRIEDMAN, Director. Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	8-03-71
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director. Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Illumination; Horology; Acoustics; Recorders; Weighing Scales.	4-19-72
SPECIAL LAWS ADMINISTRATION, GROUP 220—R. L. CAMPBELL, Director. Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	12-13-71
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director. Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	1-03-72
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240—L. FORMAN, Director. Receptacles; Joint Packing; Conduits; Plumbing Fixtures; Textile Spinning; Food; Agitating; Cleaning; Pressing; Geometrical Instruments; Sound Recording; Winding and Reeling; Measuring and Testing; Indicating.	8-09-71
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director. Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	11-29-71
DESIGNS, GROUP 290—R. L. CAMPBELL, Director. Industrial Arts: Household, Personal and Fine Arts.	4-27-71
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director. Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	12-13-71
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director. Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus: Plastic Block and Earthenware Apparatus: Machine Tools for Shaping or Dividing; Work and Tool Holders Woodworking; Tools; Cutlery; Jacks.	9-07-71
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director. Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry: Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	11-18-71
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—M. M. NEWMAN, Director. Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Machine Elements; Couplings; Gearing; Bearings; Clutches; Power Transmission; Fluid Handling and Control; Lubrication.	1-03-72
MISCELLANEOUS CONSTRUCTIONS, TEXTILES AND MINING, GROUP 350—T. J. HICKEY, Director. Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Supports; Cabinet Structures; Centrifugal Separations; Coating; Textiles; Apparel and Shoes; Sewing Machines.	10-04-71

Expiration of patents: The patents within the range of numbers indicated below expire during January 1973, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents..... Numbers 2,728,913 to 2,733,438, inclusive
Plant Patents..... Numbers 1,442 to 1,455, inclusive

PLANT PATENTS

GRANTED JANUARY 2, 1973

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

3,281
ALSTROEMERIA HYBRID (YELLOW TIGER)

Maurits C. van Staaveren, 30 Hornweg, Aalsmeer, Netherlands

Filed Apr. 9, 1971, Ser. No. 132,921
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—68 1 Claim

A new variety of alstroemeria plant characterized by its novel color, the abundance of its annual crop of flower stalks, the profuse production of blossoms on each flower stalk, and the very long lasting quality of the blooming plant as a cut flower.

3,282
ROSE PLANT

Herbert C. Swim and O. L. Weeks, Ontario, Calif., assignors to The Conard-Pyle Company, West Grove, Pa.

Filed July 22, 1971, Ser. No. 165,412
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—19 1 Claim

1. A new and distinct variety of rose plant of the hybrid tea class, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of excellence of its hybrid tea habit, particularly good foliage having above average disease resistance, a habit of bearing most of the flowers singly and on long and strong stems, an ability to retain a high-centered flower bud conformation through substantially the entire flower life, a distinctive, attractive and outstanding pink flower color which is maintained throughout the blooming stages from bud to open flower, an unusually strong, pleasant and true rose flower fragrance, and good lasting flower qualities and remontance of bloom which give the overall effect of almost continuous blooms on an attractive plant which is well covered with excellent foliage.

3,283
ALSTROEMERIA PLANT (CANARIA)

Maurits C. van Staaveren, 30 Hornweg, Aalsmeer, Netherlands

Filed Apr. 9, 1971, Ser. No. 132,918
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—68 1 Claim

A new variety of hybrid alstroemeria plant characterized by the novel overall yellow coloring of its flowers, the abundance of its annual crop of flower stalks, the serial blooming of the buds on each branch of the flower stalk, and the very long-lasting quality of the blooming plant as a cut flower.

3,284
HYBRID ALSTROEMERIA PLANT

Maurits C. van Staaveren, 30 Hornweg, Aalsmeer, Netherlands

Filed Apr. 9, 1971, Ser. No. 132,917
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—68 1 Claim

A new variety of hybrid alstroemeria plant characterized by the unusual pink color of its blooms, its vigorous growth and branching of the flower stalk, its tendency to flower the year around with an abundant flower crop on each stalk, and the long lasting quality of the blooms as a cut flower.

3,285
KALANCHOE PLANT

James T. Irwin, Canyon, Tex., assignor to Irwin Greenhouses, Inc., Canyon, Tex.

Filed Apr. 13, 1971, Ser. No. 133,769
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—68 1 Claim

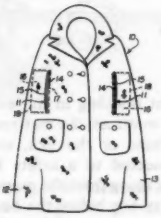
1. A new and distinct variety of kalanchoe plant, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of a highly branched and upright habit of growth, medium sized and flexible foliage of moss green to fern green color, a uniform and consistent plant height and bloom date, an ability to initiate and develop flower buds under high night temperatures of summer when other varieties fail, a profuse blooming habit, with the ability to respond to short day treatment and with consequent capability of year-around flowering, a distinctive, attractive and uniform apricot flower color, superior resistance to root rot as compared with most other varieties, and long-lasting qualities as a potted plant.

PATENTS

GRANTED JANUARY 2, 1973

GENERAL AND MECHANICAL

3,707,729
GARMENT CONSTRUCTION
Lydia Scarsella, Astoria, N.Y., assignor to Zim-Stra Originals Inc., New York, N.Y.
Filed Nov. 27, 1970, Ser. No. 93,055
Int. Cl. A41d *3/08*
U.S. Cl. 2—88 **3 Claims**

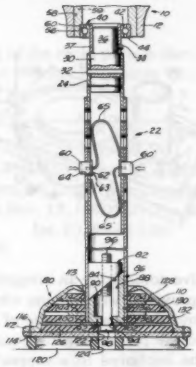


A garment constructed in the form of a cape having a pair of spaced arm openings permitting the wearer to pass her arms to the front of the garment. A flap member is provided on the inner side of the garment adjacent each arm opening, said flap member overlapping the opening to conceal the dress worn beneath the garment.

3,707,730
BASKETBALL PRACTICE GLOVE
Gordon R. Slider, 229 East Walnut St., Allentown, Pa.
Continuation-in-part of Ser. No. 761,716, Sept. 23, 1968, abandoned. This application Dec. 17, 1970, Ser. No. 99,022
Int. Cl. A11d *19/00*
U.S. Cl. 2—161 A **6 Claims**

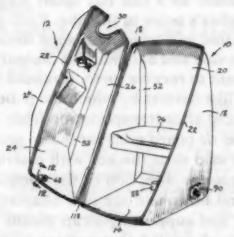
A glove, to be worn while practicing basketball, having palm, back, and wrist portions, and open thumb and finger portions. The palm portion includes a pad, which spaces the wearer's palm from the ball, and the back portion includes a longitudinally extending stay, which limits bending movement of the wearer's wrist. An adjustable strap extends between the thumb and index finger portions of the glove to limit the extent to which these members can be separated. The restraining action of the strap between the index finger and thumb portions and the pad in the palm portion of the glove form the wearer's hand into a cup-like shape so that a basketball held in the gloved hand is controlled by the tips of the thumb and fingers.

3,707,731
ARTIFICIAL LEG
Robert D. Morgan, 3130 Coldwater Canyon, North Hollywood, Calif.
Continuation-in-part of Ser. No. 880,736, Nov. 28, 1969, abandoned. This application June 9, 1971, Ser. No. 151,220
Int. Cl. A61f *1/08*
U.S. Cl. 3—21 **9 Claims**



An artificial leg constructed to be particularly adapted for use by amputees engaged in activities requiring particular degrees of freedom of movement, such as golf. The leg comprises a lightweight socket adapted to receive a stump and a leg part with a joint between the socket and leg part allowing 360° of relative rotation therebetween. The socket and leg part are rigidly aligned. At the lower end of the leg part is a foot with a joint between the foot and leg part allowing lateral tilting of the leg relative to the foot and to provide a cushioning shock absorber effect. The foot member is round and symmetrical about its center, thus, avoiding any problem of foot alignment with the socket and leg stump.

3,707,732
STEAM BATH CABINET
Dale L. Cosper, 1603 E. Hoover Ave., South Bend, Ind.
Filed Sept. 14, 1970, Ser. No. 71,977
Int. Cl. A61h *33/06*
U.S. Cl. 4—164 **10 Claims**



A steam bath cabinet including a closet part having an opening thereinto defined by coplanar edge portions. A door hinged to the closet part and including edges adapted to make

sealing contact with the coplanar end portions of the closet part of the cabinet. The door of the cabinet is of a generally concavo-convex configuration which protrudes forwardly from the closet part of the cabinet when the door spans the opening of the closet part. The upper edge of the door is interrupted to form a slot into which the neck of the cabinet user is positioned when the door is closed.

3,707,733

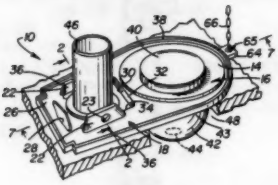
FLAPPER FLUSH VALVE

William C. Gore, and Eugene B. Shapiro, both of Skokie, Ill., assignors to Beatrice Foods Company, Skokie, Ill.

Filed April 19, 1971, Ser. No. 135,252

Int. Cl. E03d 1/34

U.S. Cl. 4—57 P **6 Claims**



A flapper flush valve comprising an integral unitary flexible resilient valve unit provided with means whereby it may be anchored to fit around the overflow tube of a toilet tank, or may be connected to the projections or trunions on an overflow tube, or may be anchored to a support member other than the overflow tube.

3,707,734

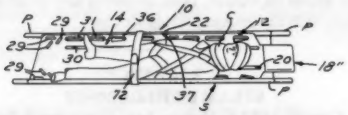
UNIVERSAL SPINE AND SPLINTING BOARD

Max Matthews, 1502 East Eleven Mile Road, Royal Oak, Mich.

Filed March 17, 1971, Ser. No. 125,065

Int. Cl. A61g 1/00; A47c 17/64

U.S. Cl. 5—82 **20 Claims**



A board structure is constituted by a pair of separate rigid, generally rectangular panels, each of which may be used in various ways to the exclusion of the other, or which may be used in combination as a full flat splint length, as coupled rigidly by a stretcher's poles of the like. Each panel has a pair of elongated parallel and laterally spaced slots extending longitudinally within side and end margins thereof, the slots being of a width sufficient to receive torso, forehead and/or chin immobilizing strap-like devices by which the patient is restrained prior to, during and after transportation from the scene of an injury. Each panel or board member is also provided, laterally outwardly of the said slots thereof with a series of openings, generally oblong in the direction of the panel's length, which may serve as hand holes and are also adapted to receive patient restraining and supporting strap means of one sort or another. Clusters of small belt-receiving slots adjacent corresponding lower corners of the boards complete the pattern of aperturing of the latter. The use, in association with the boards, of cushioned forehead and chin restraining strap devices having hook and loop-type pressure fasteners and supplemental adjustable buckle or snap fastener means is contemplated.

3,707,735

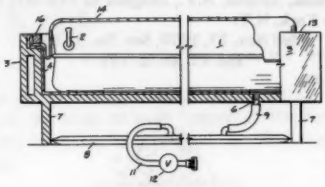
SAFETY DEVICE FOR FLUID FILLED MATTRESSES

Robert N. Carson, Jr., San Rafael, Calif., assignor to Carson Manufacturing Co., San Rafael, Calif.

Filed March 10, 1971, Ser. No. 122,699

Int. Cl. A47c 27/08

U.S. Cl. 5—348 **6 Claims**



In order to prevent flooding in the event of a leakage or break in a fluid filled mattress, the mattress is surrounded by a lining in the bed frame or the like, and the lining has a drainage outlet connected to a safety bag under the bed, whereby the water escaping from the mattress into the lining is drained into the safety bag below the bed; means being provided for draining the water out of the safety bag at will; there may be provided also a cover over the top of the fluid filled mattress to completely enclose the mattress in the bed.

3,707,736

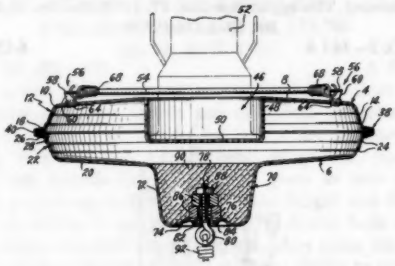
FISHERMAN'S LANTERN FLOAT

Robert C. Bass, Pelham, Ga., assignor to Bimbo Inc., Pelham, Ga.

Filed Nov. 20, 1970, Ser. No. 91,320

Int. Cl. B63b 21/52

U.S. Cl. 9—8.3 R **5 Claims**



A float having a well in the top surface thereof for receiving the base of a lantern, and having a ballast filled cup projecting from the lower surface thereof beneath said well. A lantern placed in said well is anchored by a pair of closely spaced, parallel elastic cords secured at their opposite ends to the top wall of said float to extend across the well.

3,707,737

APPARATUS FOR CLEANING SUBMERGED SURFACES

David F. Brower, San Diego, Calif., assignor to Peltec Corporation, San Diego, Calif.

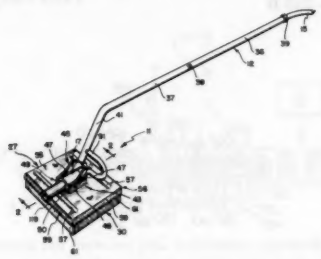
Filed Aug. 30, 1971, Ser. No. 175,820

Int. Cl. E04h 3/20

U.S. Cl. 15—1.7 **10 Claims**

A liquid under pressure flows through a conduit to an inlet of a jet pump means from which issues a high velocity stream of liquid. An area of pressure lower than ambient pressure is established in the high velocity stream and this is communicated through a passageway to an inner face of a compressible resilient pad which is to be disposed against the submerged

surface. A pressure differential exists between the ambient liquid on the outer side of the pad and the liquid flowing between the inner surface of the pad and the submerged surface and this pressure differential urges the compressible pad toward the submerged surface to conform to the contour thereof and results in a thin high velocity film of liquid flow across the submerged surface to clean the same. Rubbing con-



tacts between the submerged surface and asperities on the surface of the pad serves to augment the cleaning action of the liquid flow. The resilient pad may also be somewhat porous thus allowing the flow of some liquid directly from the peripheral areas of the pad to the inlet of the jet pump thus tending to increase the surface flow velocity in these peripheral areas.

3,707,738

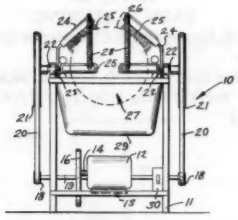
BASKET BALL WASHING DEVICE

Milan Samuel Morris, P.O. Box 214, Towner, Colo.

Filed April 12, 1971, Ser. No. 133,286

Int. Cl. A63b *47/04*

U.S. Cl. 15—21 A **1 Claim**



A washing machine for basket balls. This device includes a multiple number of electric motor-driven brushes which scrub the basket ball with a solution carried from the tube portion of the device onto the ball.

3,707,739

MOLDED BRUSH HEAD

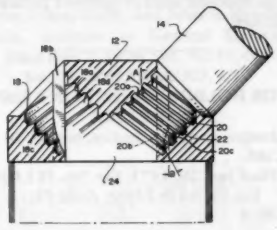
Benito J. Hermann, Jr., St. Charles, Ill., assignor to National Brush Company, Aurora, Ill.

Filed Dec. 9, 1970, Ser. No. 96,552

Int. Cl. A46b *1/00*

U.S. Cl. 15—176 **5 Claims**

A brush head of pushbrooms, or the like, with molded threads so that threaded handles can be screwed therein. The threads formed in such brush head have thread deformations that are formed by protuberances located on a pair of mold parts of such configurations so that the contoured portions formed by the mold parts closely approximate a complete thread within the respective openings to receive a threaded end of a broom handle. The contoured portions of the mold parts are fashioned to provide a zero draft or taper angle between the mold parts and the threads formed thereby so



that linear parting of the mold parts is then possible. A pair of angularly disposed threaded openings can be formed by the mold.

3,707,740

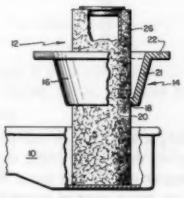
CLEANER FOR PAINT ROLLERS

Romeo J. N. Demers, 10 Trudel Ave., Dracut, Mass.

Filed Nov. 13, 1970, Ser. No. 89,418

Int. Cl. B44d *3/00*

U.S. Cl. 15—236 R **8 Claims**



An apparatus for cleaning paint rollers comprises a relatively thick, solid body having an aperture therethrough, preferably of truncated, conical configuration, for admitting a paint roller for scraping paint therefrom by contact with the bottom, beveled cleaning edge of the aperture. The top portion of the body includes an integral, annular peripheral flange, or bearing surface, serving as a hand grip. In one deep dished, embodiment of the invention, the material is constructed of a sufficiently low modulus material that some pressure exerted on the bearing surface causes the edges of the aperture to be deflected inwardly to aid the cleaning action.

3,707,741

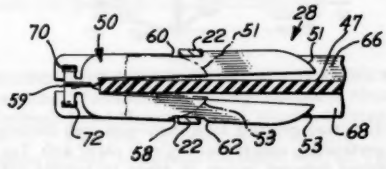
WINDSHIELD WIPER

Harry W. Roberts, Merrick, N.Y., assignor to Pylon Manufacturing Corporation

Filed April 5, 1971, Ser. No. 131,091

Int. Cl. B60s *1/02*

U.S. Cl. 15—250.42 **7 Claims**



A universal windshield wiper having a supporting superstructure detachably supporting a subassembly comprised of a blade, a backing strip and a latching clip detachably

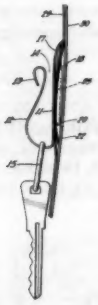
retaining the blade and backing strip. The latching clip is provided with two legs, each having a contoured exterior with a single shoulder and the shoulders are offset one from the other so as to engage opposite sides of opposed parts of the supporting superstructure.

3,707,742

DEVICE FOR HOLDING OBJECTS IN A HANDBAG OR THE LIKE

Marjorie T. Justice, and Jack Justice, both of 70 Linden Drive, Ventura, Calif.

Filed Jan. 29, 1971, Ser. No. 111,049
Int. Cl. A44b *21/00*; A45c *11/32*
U.S. Cl. 24—86 B 2 Claims



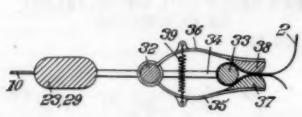
A device for holding a key ring or the like in which a hook projects from the lower edge of a plate from one side of the plate member, the upper end of the plate being inclined from the hook, while one or more prongs extend downwardly from the upper end to a position of engagement with the opposite side of the plate, terminating in pointed ends bent outwardly away from the plate. A pressure-sensitive adhesive element may be included on the opposite side of the plate.

3,707,743

TREATMENT OF CONTINUOUS SHEET MATERIAL

Paul Henri Marchal, Neuilly, France, assignor to Midland-Ross Corporation, Cleveland, Ohio

Division of Ser. No. 886,835, Dec. 22, 1969, Pat. No. 3,643,343. This application Oct. 21, 1971, Ser. No. 191,165
Int. Cl. F26b *13/06*; A44b *21/00*
U.S. Cl. 24—252 R 1 Claim



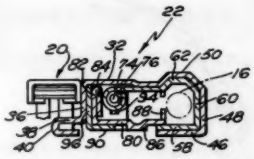
This disclosure pertains to a multi-pass web-treating apparatus particularly adapted for drying a paper web. The web is transferred between passes or zones by turning rolls. A threading device associated with the dryer utilizes turning sheaves which are associated with each turning roll over which at least one threading rope or tape travels. An attachment device is fixed to the tape to hook or unhook the end of a paper web to be threaded through the dryer.

3,707,744

ADJUSTABLE END CONNECTOR FOR WATCHBANDS

Joseph F. Manzo, Cranston, R.I.; James P. Harris, Attleboro, Mass.; Robert T. Harris, Providence, and Erwin W. Mauch, Warwick, both of R.I., assignors to Brite Industries, Inc., Providence, R.I.

Filed May 19, 1971, Ser. No. 144,975
Int. Cl. A44c *5/8*
U.S. Cl. 24—265 B 4 Claims



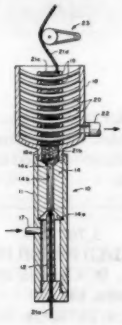
An adjustable end connector for watchbands and the like, said connector having means movable between and open and a closed position permitting the connector to be clipped onto a conventional mounting pin bridging the lugs extending from the watch case, said connector further having oppositely disposed end pieces protruding outwardly from opposite sides of the connector and surrounding the mounting pin, and resilient means urging said end pieces outwardly into engagement with the mounting lugs whereby the connector automatically adjusts itself to differently spaced lugs.

3,707,745

YARN TEXTURING

Ronnie D. Nikkel, Greenville, S.C., assignor to Phillips Petroleum Company

Filed Dec. 16, 1970, Ser. No. 98,668
Int. Cl. D02g *1/20*, *1/12*, *1/16*
U.S. Cl. 28—1.3 8 Claims



Yarn is textured by passage at an elevated temperature into a zone of turbulence. The resulting textured yarn is passed through a chamber which contains a plurality of layers of rods. The individual rods of alternate layers are curved and straight, respectively. These rods exert a force on the yarn to produce a confined wad. Fluid employed to produce the turbulence zone is separated from the textured yarn in the chamber.

3,707,746

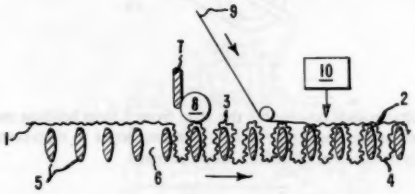
PROCESS OF PREPARING A TUFTED PRODUCT

Ronald J. Summers, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 853,633, Aug. 28, 1969, abandoned. This application June 3, 1971, Ser. No. 149,846

Int. Cl. D04h *18/00*; B32b *5/00*

U.S. Cl. 28—72.2 F 11 Claims



A process for forming pile structures comprising the forming filamentary pile loops and securing the base of the loops to a nonwoven backing material by impinging the material with liquid streams to entangle the fibers. The resultant unitary structure is formed without requiring the use of adhesive bonding, has excellent strip tensile strength and tuft pull out strength, and is useful in conventional pile-fabric end-uses. e.g., carpets.

3,707,747

INSERT FOR CUTTING TOOL

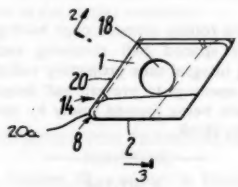
Willi Falk, Tonisvorst, Germany, assignor to Deutschne Edelstahlwerke A.G., Krefeld, Germany

Filed Jan. 27, 1971, Ser. No. 110,168

Claims priority, application Germany, Jan. 31, 1970, P 20 04 387.2

Int. Cl. B26d *1/00*

U.S. Cl. 29—95 5 Claims



The disclosure is directed to an insert of hard metal material which when mechanically clamped to a recessed toolholder can serve as a cutting tool. The upper and lower faces of the insert have a substantially rhomboidal form and thus the insert is substantially in the form of a rhombohedron. The insert is provided with two single-point cutting edges which are disposed adjacent to opposite corners of the insert, each of which is in the form of an acute angle. By providing each of the cutting edges on a different opposite side of the insert as well as diagonally opposite one another, the insert when mounted in a toolholder can alternately present either of the cutting edges in an operative position. As a result the useful life of the insert between sharpening operations can be appreciably extended. As determined by the positioning of the recess in the toolholder, the insert can be mounted therein with a predetermined back rake angle extending from a substantially zero value to a positive back rake angle. Adjacent to each of the side cutting edges of the insert there is provided a groove which can serve as a chip breaker for a chip cut from a work surface. The surface of the groove extending toward and terminating in the side cutting edge can be provided with a positive side rake angle even though the face of the insert is disposed in the toolholder with a negative side rake angle. In this way both the back rake angle and the side rake angle can be established to be positive.

3,707,748

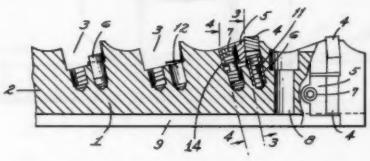
CUTTING TOOL FOR HOLDING A PLURALITY OF DISPOSABLE CUTTING INSERTS

Warren R. Price, Utica, Mich., and John H. Brownlee, St. Clair Shores, Mich., assignor to General Electric Company

Filed Dec. 7, 1970, Ser. No. 95,445

Int. Cl. B26d *1/04*, *1/00*, *1/12*

U.S. Cl. 29—95.1 4 Claims



A cutting tool of the broach type for holding a plurality of disposable and indexable cutting inserts. The broach tool comprises a holder body having a plurality of transverse grooves on its peripheral surface, each of the grooves containing a plurality of spaced cutting inserts. The cutting inserts, generally U-shaped, straddle projections in the base of the groove for lateral location of the insert. A wedge member adjacent the inserts cooperates with the projections to hold each of the inserts in spaced location in the grooves of the holder body.

3,707,749

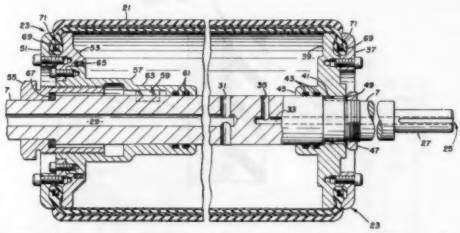
VARIABLE PRESSURE BED ROLLER

Virgil E. Henley, Akron, Ohio, assignor to the General Tire & Rubber Company

Filed Oct. 12, 1970, Ser. No. 79,846

Int. Cl. B21b *31/32*

U.S. Cl. 29—113 R 5 Claims



In applying pressure to sheets of pliable material, solid rollers do not provide for variation in pressure dwell time. Variable pressure rollers that do provide variation in pressure dwell time tend to crown or distort except where complicated anti-distortion mechanisms are utilized. This invention is a variable pressure bed roller for application of pressure to sheets of pliable material that is crown and distortion resistant and of extremely simple design.

3,707,750

METHOD FOR MANUFACTURING A TURBINE BLADE

Georg Klass, Tuerkenfeld, Germany, assignor to Motoren-und Turbinen-Union Munchen GmbH, Munich, Germany

Filed Nov. 13, 1969, Ser. No. 876,256

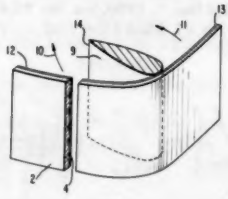
Claims priority, application Germany, Nov. 14, 1968, P 18 08 852.3

Int. Cl. B21k *3/04*; B23p *15/02*, *15/04*

U.S. Cl. 29—156.8 B 17 Claims

A method for manufacturing a turbine blade in which a sheet metal strip, corresponding in its dimensions to the developed blade, is provided with cooling passages, thereafter

a thinner sheet metal strip is attached to the sheet metal strip provided with the grooves by welding or brazing to form a blade wall, and thereafter the blade wall is placed about a tool

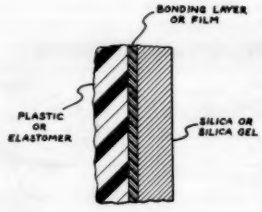


core and is deformed into the shape of the blade whereupon the ends of the strips are connected with each other by brazing or welding to form the trailing edge of the blade.

3,707,751
DAMPENING ROLLER HAVING HYDROPHILIC SURFACE COATING

Robert D. Misch, and Donald A. Daus, both of Chicago, Ill., assignors to MBT Corporation, Chicago, Ill.

Division of Ser. No. 8,530, Feb. 4, 1970, Pat. No. 3,637,416, Continuation-in-part of Ser. No. 636,258, May 5, 1967, abandoned, which is a continuation-in-part of Ser. No. 473,212, July 19, 1965, abandoned, and a continuation-in-part of Ser. No. 524,454, Feb. 2, 1966, abandoned, which is a continuation-in-part of Ser. No. 231,299, Oct. 17, 1962, abandoned. This application June 9, 1971, Ser. No. 151,416
Int. Cl. B21b *31/08*; B60b *5/00, 21/00*
U.S. Cl. 29—132 **3 Claims**



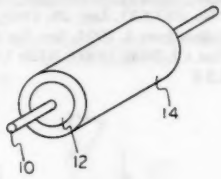
A method of improving the surface characteristics of plastics and elastomers which in its preferred aspects includes the steps of forming a bonding or coupling film on the surface of a plastic or elastomeric material and thereafter contacting the film with a compound or a mixture of compounds, or a solution thereof, capable of forming a deposit or coating of silica or silica gel thereon, and articles produced in accordance with the method.

3,707,752
ROLL COVERING

Donald A. Brafford, and Richard J. Adams, both of Beloit, Wis., assignors to Beloit Corporation, Beloit, Wis.

Filed Oct. 28, 1970, Ser. No. 84,782
Int. Cl. B21b *31/08*
U.S. Cl. 29—132 **4 Claims**

A roll capable of operating at high speeds and high nip pressures having an outer shell of a composite material formed by bonding a needled nonwoven mat of either acrylic fibers, polyester fibers or mixtures of these fibers with an epoxy resin so that ten to forty percent by weight of the composite is fiber. The covering above described may be manufactured by winding a continuous strip of the mat, said mat having been saturated with the resin onto a roll at a uniform speed and with a lead sufficient to build a plurality of layers in one pass while

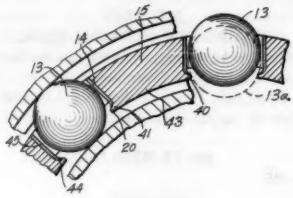


simultaneously unwinding the strip from a strip holding means under brake tension to permit winding so as to decrease the width of the strip by at least three percent.

3,707,753
METHOD OF MAKING CAGES

Joseph K. Bailey, Jr., Lakewood, N.Y., assignor to TRW Inc., Cleveland, Ohio

Continuation-in-part of Ser. No. 83,768, Oct. 26, 1970, abandoned. This application Sept. 8, 1971, Ser. No. 178,717
Int. Cl. B21d *53/12*; B23p *13/04*
U.S. Cl. 29—148.4 C **10 Claims**

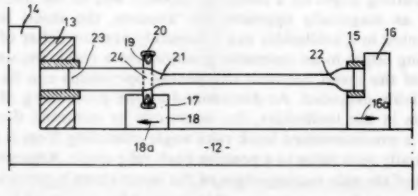


An anti-friction rolling element cage having a plurality of circumferentially spaced ball receiving radially directed openings having integral tabs projecting radially inwardly at one end of the openings to prevent ball dropout in a radial direction, the tabs being formed solely by removal of metal from the cage ring blank.

3,707,754
METAL WORKING

Abdou Hanna Meleka, and William Alfred Proops, both of Filton, England, assignors to Secretary of State for Defence

Filed June 29, 1970, Ser. No. 50,873
Claims priority, application Great Britain, Aug. 11, 1969, 34,943/69
Int. Cl. B23p *15/02*
U.S. Cl. 29—156.8 H **4 Claims**



A method of die-less drawing of metal under tensile load by applying localized heating to a transition zone at which elongation occurs. The temperature applied lies between defined limits and the strain rate obtained also lies between defined limits.

3,707,755

APPARATUS FOR MOUNTING FILM TRANSPARENCIES

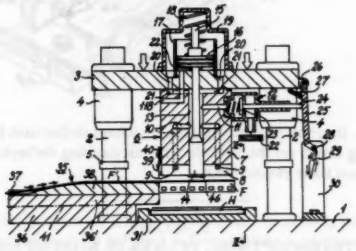
Sven Goran Pettersson, Weidstrasse 20, Zug, Switzerland

Filed Aug. 3, 1971, Ser. No. 168,690

Claims priority, application Sweden, Aug. 17, 1970, 11175/70

Int. Cl. B23p *19/00*

U.S. Cl. 29—200 B 9 Claims



An apparatus for mounting film transparencies onto flat, frame-like carrier members comprises a reciprocatable suction head, to the concave forward end of which the transparencies are supplied in a pre-curved condition to be picked up by suction and delivered to each one of a series of carrier members fed stepwise through the apparatus. Curving of the transparencies is accomplished by feeding them along a track having converging side rails and a wedge-like member between said rails. The transparencies may be severed by cutting from a long film strip just before being picked up by the suction head. A retractable ejector member projecting through the concave end of the suction head provides for positive release of the transparencies from the suction head and their attachment to the carrier members.

3,707,756

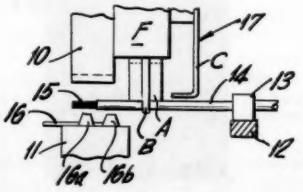
WIRE POSITIONER FOR TERMINAL ATTACHING MACHINE

Joseph Wolyn, Gurnee, Ill., assignor to Thomas & Betts Corporation, Elizabeth, N.J.

Filed Feb. 12, 1971, Ser. No. 114,858

Int. Cl. H01r *43/04*; H05k *13/00*

U.S. Cl. 29—203 D 5 Claims



A wire positioner for controlling both the transverse and vertical movement of the free end of a stripped wire preparatory to being crimped to the ferrule portion of an electrical connector includes a retractable vertical guide which cooperates with a stationary guide to limit transverse movement of the wire, and a horizontally disposed member which is downwardly movable to force the conductor downwardly between said vertical guides to a position in close proximity to the electrical connector.

3,707,757

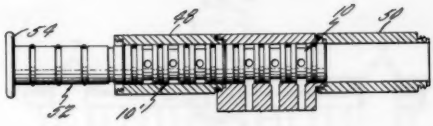
IN-LINE REPLACEMENT TOOL

George J. Roebelen, Jr., Suffield, and Thomas E. Fitzsimmons, Granby, both of Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed Sept. 2, 1970, Ser. No. 68,832

Int. Cl. B23p *19/04*

U.S. Cl. 29—213 7 Claims



This invention relates to a tool and a method for replacing component parts used in a fluid system whose parts are made in a cartridge fashion readily adaptable to receive the tool so as to keep fluid loss and atmosphere inclusion at a minimum.

3,707,758

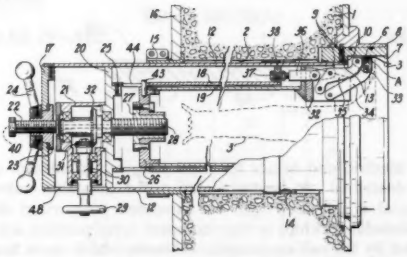
INSTALLATION FOR MOUNTING SEALING RINGS AND THE LIKE, ESPECIALLY FOR RADIOACTIVE ENCLOSURES

Eric J. Townsend, Vitry sur Seine, France, assignor to Commissariat A L'Energie Atomique, Paris, France

Filed April 16, 1970, Ser. No. 29,044

Int. Cl. B23p *19/04*; G21c *19/24*

U.S. Cl. 29—235 8 Claims



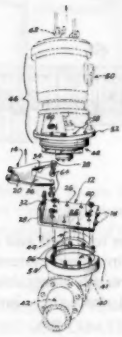
An installation for mounting extensible rings and comprising a tool for inserting a ring up to the collar of an enclosure at the extremity of a passageway which provides access to said enclosure and for producing the movement of extension of the ring against the collar. The tool comprises a tubular frame which can be temporarily fixed in a predetermined position within the passageway and two concentric tubular elements placed within the frame, said elements being displaceable by two actuating devices. One device produces the simultaneous and axial displacement of both tubular elements within the tubular frame. The other device produces the axial displacement of one tubular element with respect to the other in combination with gripping members which are carried by one of the tubular elements, said gripping members being moved in a substantially radial direction as a result of the relative axial displacements of the two tubular elements.

3,707,759

PUMP MAINTENANCE CRADLE

Edward C. Ray, Auburn, and William P. Kahabka, Seneca Falls, both of N.Y., assignors to Goulds Pump Incorporated, Seneca Falls, N.Y.

Filed June 30, 1971, Ser. No. 158,420
Int. Cl. B23p 7/00
U.S. Cl. 29—401 10 Claims



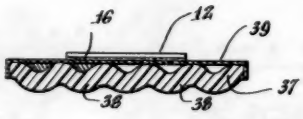
A cradle facilitating maintenance of an in-line pump selectively at the pump site or at a remote maintenance shop.

3,707,760

METHOD AND DEVICE FOR ARTICLE WORKING SUCH AS FRACTURING OF SEMICONDUCTOR SLICES AND SEPARATING SEMICONDUCTOR CHIPS

Paul Stuart Citrin, New Milford, Conn., assignor to Sieburg Industries Incorporated, Danbury, Conn.

Filed May 19, 1971, Ser. No. 144,917
Int. Cl. B23p 17/00, 19/00
U.S. Cl. 29—413 16 Claims



A method and device for separating semiconductor chips are described. A heat-actuated self-expandable substrate material is provided with an expanded memorized shape. Semiconductor chips in their compact array position are supported by the self-expandable substrate which upon heating thereof expands to its memorized shape to separate the chips from one another. Several self-expandable substrate configurations are shown and an apparatus for scribing and fracturing of a semiconductor slice and separating the chips from their compact position in the fractured array is described. The self-expandable substrate material is characterized by its accurately predictable expansion to provide uniform chip separations suitable for subsequent handling.

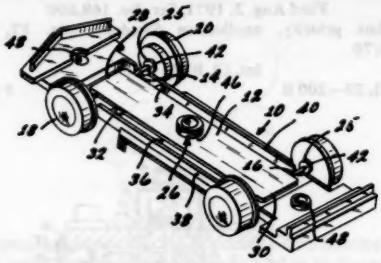
3,707,761

METHOD OF CONSTRUCTING A TOY VEHICLE

Harvey W. LaBranche, Olympia, Wash., assignor to Mattel, Inc., Hawthorne, Calif.

Division of Ser. No. 816,196, April 15, 1969, Pat. No. 3,621,609. This application June 21, 1971, Ser. No. 154,931
Int. Cl. B23p 11/02
U.S. Cl. 29—446 3 Claims

A toy vehicle in which axle wires are molded into a thin block of resilient plastic to keep the axles well aligned. The block is attached to the vehicle frame at its center, so the opposite ends wherein the axles are held free to deflect upwardly, thereby permitting greater wheel deflection by a child pressing down on the vehicle without causing deflection of the axles past their elastic limit.



3,707,762

METHODS OF USING FLUXES IN JOINING METAL SURFACES

Julius H. Bochinski, La Habra; Karl O. Christe, Calabasas; Frank C. Gunderloy, Jr., Santa Susana; Donald Pilipovich, Agoura, and Richard D. Wilson, Canoga Park, all of Calif., assignors to North American Rockwell Corporation

Filed Oct. 29, 1970, Ser. No. 85,308
Int. Cl. B23k 31/02, 35/38
U.S. Cl. 29—494 16 Claims

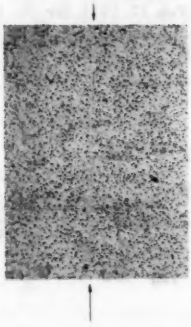
A method for joining metal surfaces such as by soft soldering, brazing or solder reflowing is provided wherein a gaseous hydrazine flux is used to remove tarnish films from the metal surfaces to permit the metal surfaces to form a good metallurgical bond.

3,707,763

BONDING TUNGSTEN WITH A FUGITIVE ALLOY BINDER

Norman C. Binkley, Oak Ridge, and Joseph P. Hammond, Knoxville, both of Tenn., assignors to The United States of America as represented by the United States Atomic Energy Commission

Filed July 1, 1971, Ser. No. 158,837
Int. Cl. B23k 31/02, 35/24
U.S. Cl. 29—498 1 Claim

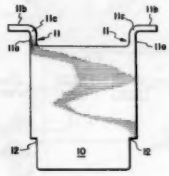


A method of forming a tungsten-to-tungsten joint which comprises depositing on at least one of the faying surfaces a thin film, foil or coating of an alloy consisting essentially of, in weight percent, 55–75 percent nickel, balance iron, pressing the faying surfaces together, heating the joint area to just above the melting point of the alloy in an inert atmosphere to produce a joint which has a remelt temperature approximating the melting point of the tungsten-base metal.

3,707,764
WHOLLY INTEGRAL ANODE FOR ELECTROLYTIC REFINING OF METALS

George J. Frankovich, Sandy, Utah, assignor to Kennecott Copper Corporation, New York, N.Y.

Filed April 1, 1970, Ser. No. 24,711
Int. Cl. B23k *19/00*
U.S. Cl. 29—527.6 5 Claims

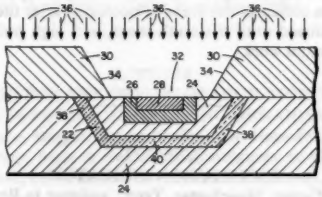


Metallic copper or other metal, such as nickel, to be subjected to electrolytic refining is formed into a continuous slab strip of anode width and thickness. The strip is cut transversely of its width to form successive, rectangularly shaped, anode slab blanks, each having a pair of elongate members extending longitudinally of the strip at one set of corners of the blank. The so-formed blanks are passed individually through a bending operation, by which the elongate members of each blank are bent outwardly laterally of the blank and preferably within the plane thereof and intermediate the lengths of such members to form suspension lugs wholly integral with the remainder, i.e. slab body, of the blank, while being held preferably at the notched other set of corners of the blank from which the elongate members of the immediately preceeding blank were cut. The individual anodes, as articles of manufacture, have respective slab bodies, with wholly integral and upwardly and laterally outwardly projecting lugs at the upper corners thereof to serve as suspension hangers. These anodes are characterized by elongate notches at the lower corners of the respective slab bodies, such notches extending upwardly along the lateral margins of the slab bodies.

3,707,765
METHOD OF MAKING ISOLATED SEMICONDUCTOR DEVICES

Michael G. Coleman, Tempe, Ariz., assignor to Motorola, Inc., Franklin Park, Ill.

Filed Nov. 19, 1970, Ser. No. 90,960
Int. Cl. B01j *17/00*
U.S. Cl. 29—578 3 Claims

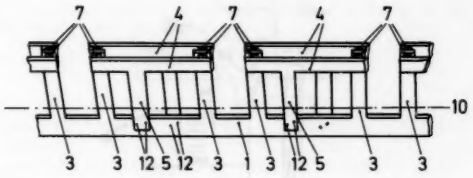


After a semiconductor device is completed and tested, it is electrically isolated from the substrate by ion implantation of a boat or dish of insulating material in the substrate and surrounding the semiconductor device.

3,707,766
METHOD OF MANUFACTURING A PLURALITY OF BRIDGE RECTIFIERS

Alois L. Veith, Freiburg, Germany, assignor to ITT Industries, Inc., New York, N.Y.

Filed May 6, 1971, Ser. No. 140,770
Claims priority, application Germany, May 13, 1970, P 20 23 288.6
Int. Cl. B01j *17/00*
U.S. Cl. 29—588 11 Claims

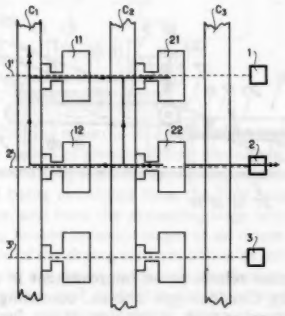


A plurality of rectifier bridges are made simultaneously by placing rectifier components on both sides at the end of comb leads. A T-shaped part is placed in contact with each pair of rectifiers on each side of the comb leads to complete the bridge. Each bridge is encapsulated and the comb leads are severed from the comb support.

3,707,767
MATRIX WITH INTEGRATED SEMICONDUCTORS FOR DEAD MEMORY

Janic Quevrin, Ollainville, France, assignor to Compagnie Generale D'Electricite, Paris, France

Filed June 26, 1970, Ser. No. 50,285
Claims priority, application France, June 26, 1969, 6921528
Int. Cl. H01l *1/16*
U.S. Cl. 29—593 4 Claims



Process of manufacturing a matrix with integrated semiconductors for a dead memory, comprising semiconductor components included in the intersections of lines-columns of a network, which are adapted to being subjected to an electric test between line and column.

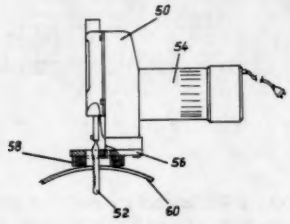
The process consists in making on the one hand each of the columns, or lines, and on the other hand at least one of the regions of the components in the form of a pair of demi-columns, or half-columns, and demi-components, or half-components.

3,707,768

SAW FOR MACHINING A WORKPIECE HAVING A CURVED SURFACE

Ernst Maximilian Spengler, Huessenstamm, Germany, assignor to Roeder & Spengler OHG, Bergen-Enkheim, Hessen, Germany

Division of Ser. No. 776,516, Nov. 18, 1968, Pat. No. 3,570,351. This application Nov. 12, 1970, Ser. No. 88,974
Claims priority, application Germany, Nov. 25, 1967, R 47 443 138; Nov. 25, 1967, R 36 448 38
Int. Cl. B23d 49/16
U.S. Cl. 30—166 3 Claims



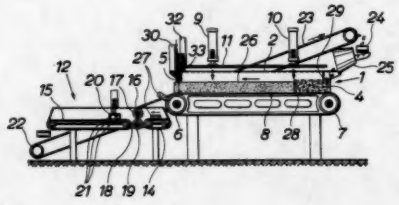
The present saw has a curved workpiece support which is rotatably attached to the saw by a bearing through which the saw blade extends whereby a curved surface workpiece may be cut so that the saw blade extends perpendicularly relative to the curved surface at all times during the cutting operation.

3,707,769

DEVICE FOR MANUFACTURING CHEESE OF CHEDDAR TYPE

Eero Syrjanen, Tampere, and Olavi Reijonen, Helsinki, both of Finland, assignors to MKT-tehtaat Oy, Helsinki, Finland

Filed Dec. 14, 1970, Ser. No. 97,957
Int. Cl. A01j 25/08, 25/15
U.S. Cl. 99—460 3 Claims



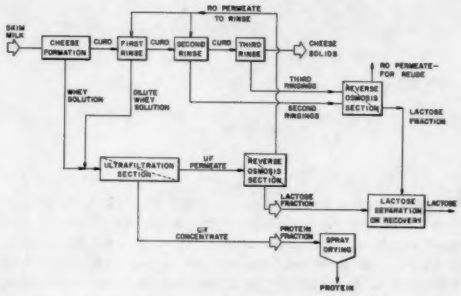
The invention relates to an improvement in a device for manufacturing Cheddar-type cheese, consisting of a cheddarising or ripening tank, a mincing device for the ripened cheese, a salting device for the minced cheese, a cheese press and conveyors for transporting the cheese from one phase to another. The invention is characterized in that the ripening tank consists of a tank known in itself in the manufacturing of other types of cheese, which has been provided with a perforated bottom moving from the initial to the ultimate end of the tank, with a press plate placed above and with a cutter for cutting the cheese mattress which rests upon the bottom, and that the device comprises a conveyor extending from the ultimate to the initial end of the tank for feeding the minced and salted cheese once more into the same tank and for ultimate pressing of the cheese in said tank.

3,707,770

METHOD FOR THE PRODUCTION OF CHEESE SOLIDS

Robert S. Timmins, Concord; Bernard S. Horton, Cambridge, and Robert L. Goldsmith, Watertown, all of Mass., assignors to Abcor, Inc., Cambridge, Mass.

Filed Aug. 11, 1971, Ser. No. 170,844
Int. Cl. A01j 25/11
U.S. Cl. 99—116 11 Claims



In a process for the preparation of a cheese solid and a treatment of the whey solution by a semipermeable membrane, the improvement which comprises: employing, to wash the curd product of the cheese solid, a low BOD effluent fraction derived from a reverse osmosis high-pressure membrane stage used to treat the whey solution; and recycling the wash effluent to the whey solution to be treated, thereby improving the total management of water in the cheese manufacturing process and avoiding water-pollution problems.

3,707,771

MEANS FOR DETECTING DENTAL OCCLUSIONS AND METHOD OF USE

Humberto R. Guerra, 4800 Marque Drive, New Orleans, La.

Filed Dec. 21, 1970, Ser. No. 100,512
Int. Cl. A61c 9/00
U.S. Cl. 32—19 1 Claim

An aerosol spray-on composition of matter comprising essentially of powdered calcium carbonate in a compatible aerosol propellant such as freon. Additional compatible agents such as an adhesive (benzoin), food-dye, and flavoring (peppermint) may also be added to the powder before suspension in the freon. In use, the powder in suspension is deposited in a thin film on the occluding surfaces of the teeth, the propellant evaporating in the air during propulsion. The broken film indicates the areas of occlusion after the mouth is naturally closed until the teeth meet, and high points in the fitting of dental work.

3,707,772

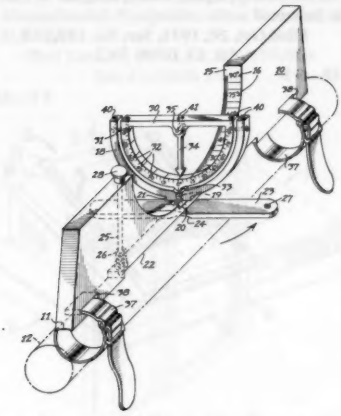
INCLINATION INDICATOR

Ashby M. Cotter, Manchester, Tenn., assignor to Roy Harper, Manchester, Tenn., a part interest

Filed June 30, 1971, Ser. No. 158,410
Int. Cl. G01c 9/16
U.S. Cl. 33—373 7 Claims

An inclinometer for simultaneously measuring inclination in two perpendicularly related planes having a first ring member rotatably mounted to a base member for rotation about an axis

normal to the longitudinal axis of the base and a second ring member, with a pendulum pivotally mounted for movement in



the plane thereof, pivotally mounted concentrically of the first ring member for movement about an axis perpendicular to the normal axis.

3,707,773

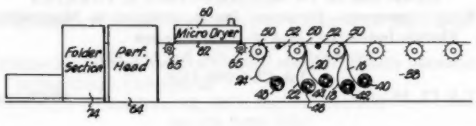
MULTI-LINE GLUING OF SUPERIMPOSED LEAVES

Larry B. Wolfberg, and John Harper, both of Wichita, Kans., assignors to Service Business Forms, Inc., Wichita, Kans.

Continuation-in-part of Ser. No. 882,256, Dec. 4, 1969, Pat. No. 3,584,199. This application Jan. 27, 1971, Ser. No. 110,186

Int. Cl. B01k *5/00*

U.S. Cl. 34—1 **15 Claims**



A series of spaced, transverse glue lines and/or one or more longitudinal glue lines, used to join certain of the face-to-face sheets of a continuous web along either or both of its marginal edges, are dried simultaneously, regardless of the width of the web or the spacing between its glue lines, by evaporation of the moisture content of the glue as the web is advanced. Heat energy is applied to the glue lines through use of wave guides that conduct electrical energy in the microwave region, and the amount of heat energy so applied is controlled in accordance with the number of glue lines being dried.

3,707,774

METHOD FOR THE DRYING OF HIGH-MOISTURE WASTE PRODUCTS OF LIVING ORGANISMS

Edwin E. Eise, Negger, Bronschhofen, and Hans-Peter Hefermehl, Vevey, both of Switzerland, assignors to Gebrueder Buehler AG, Uzwil and H. P. Hefermehl SA, Vevey, Switzerland

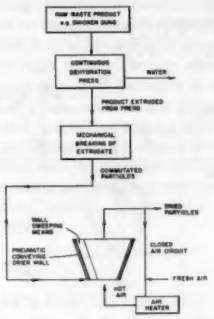
Filed Feb. 24, 1971, Ser. No. 118,529

Claims priority, application Switzerland, March 3, 1970, 3058/70

Int. Cl. F26b *5/14*

U.S. Cl. 34—14 **7 Claims**

High moisture waste products of living organisms are dried by a first treatment in a continuous dehydration press, which



may be a screw, followed by mechanical breakup and then immediate drying in a pneumatic conveying drier.

3,707,775

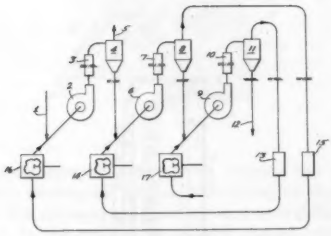
METHOD OF DRYING GOODS SUSPENDED IN A GAS STREAM

Berndt Kaltin, Tornvagen, Sweden, assignor to Aktiebolaget Svenska Flaktfabriken, Stockholm, Sweden

Filed Sept. 24, 1970, Ser. No. 75,210

Int. Cl. F26b *3/10*

U.S. Cl. 34—10 **3 Claims**



A method of drying material in which the drying material is suspended in a stream of gaseous drying medium in successive drying stages, the drying medium used being common to all of the stages and being circulated from the final stage into the preceding stage, and from the preceding stage into the initial stage and being heated between stages to an extent to elevate the temperature of the drying medium above its previous temperature whereby the drying medium in the first stage is at the highest temperature and highest moisture content and the temperature and moisture content decreases successively toward the final drying stage.

3,707,776

CONTROL MEANS FOR AN INDUCTANCE MEANS

Phillip L. Schmidgall, Indianapolis, Ind., assignor to P. R. Mallory & Co. Inc., Indianapolis, Ind.

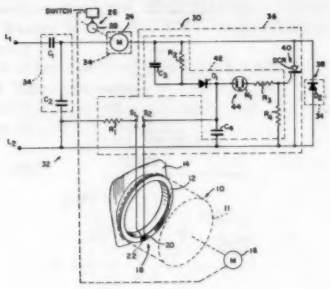
Filed Feb. 10, 1971, Ser. No. 114,140

Int. Cl. F26b *13/10*

U.S. Cl. 34—45 **8 Claims**

A resonant control means causes the voltage and current of

an inductance drive means to be out of phase with each other



so as to prevent operation of the inductance drive means.

3,707,777

FILM DRYING APPARATUS

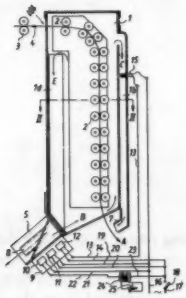
Erwin Geyken, Munich; Siegfried Krauss, Gruenwald near Munich; Franz Kocourek, Munich; Horst Koninger, Munich, and Gerhard Schwarzmaier, Munich, all of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

Filed Aug. 3, 1971, Ser. No. 168,554

Claims priority, application Germany, Aug. 6, 1970, P 20 39 206.7

Int. Cl. F26b *19/00*

U.S. Cl. 34—48 **10 Claims**



A drier for strips of developed film has a housing wherein the film is transported downwardly and is dried by ascending streams of hot air furnished by several discrete blowers each of which is equipped with a composite air heating device. Each heating device has a first electric resistance heater which is started in response to closing of a master switch to furnish a basic heating action, a second resistance heater which is adjustable by a regulator having a manually adjustable potentiometer, and a third resistance heater which can be started by a temperature gauge. The latter monitors the temperature of air which circulates in or leaves the housing and starts the third resistance heater when the thus determined temperature is below a preselected value. Some of the spent air which leaves the housing is recirculated to the blowers.

3,707,778

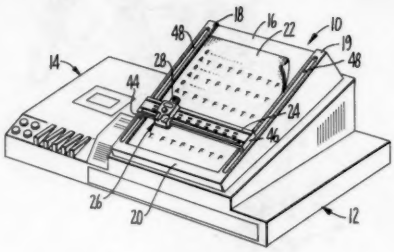
TEACHING MACHINE

Thomas K. McGourty, Aptos, Calif., assignor to EDP Limited, Nassau, Bahamas

Filed Oct. 20, 1971, Ser. No. 190,773

Int. Cl. G09b *7/02*

U.S. Cl. 35—9 B **7 Claims**



A teaching machine is provided for use with question and answer sheets wherein the correct answers appear to be randomly spaced on the sheet. A cursor moves over a ruler and a student presses the button when he believes he has the right answer. An indicator such as green or red lights indicate whether a right or wrong answer has been obtained and means are provided on both the cursor and the ruler so that the connections are reversed from column to column and from line to line so that the student does not learn any set pattern as to where the correct response will be on the machine. A relay may be provided so that after the button is depressed the light will remain lit until the cursor or ruler is moved. A novel rack and pinion arrangement maintains the ruler in a parallel relationship with the answer sheet.

3,707,779

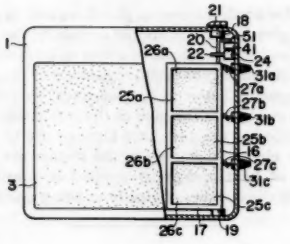
DUAL-USE OPTICAL PROJECTION APPARATUS

Kozo Yamamoto, Hirakata, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Feb. 1, 1971, Ser. No. 111,227

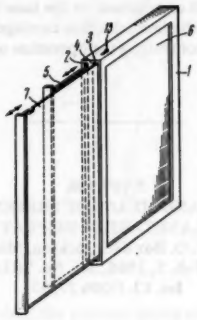
Int. Cl. G09b *3/06*

U.S. Cl. 35—9 E **10 Claims**



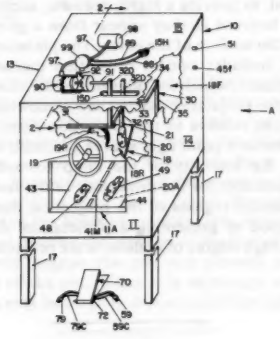
A dual-use optical projection apparatus having movable dousers or light-intercepting plates inserted between a screen on which an image on the film in an optical system is projected and the film itself, and a control system for moving the light-intercepting plates between a position where part of the image on the film is prevented from being projected on the screen and another position where the whole image is projected on the screen, whereby the projector is usable both as educational equipment combined with a film having question and answer sections and an ordinary projector.

3,707,780
TEACHING MACHINE
Vladimir Alexandrovich Vadjushin, ulitsa Knorina, 19, kv. 28, Minsk, U.S.S.R.
Filed June 28, 1971, Ser. No. 157,450
Int. Cl. G09b 3/00
U.S. Cl. 35—9 F 2 Claims



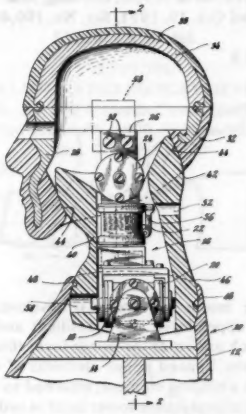
A teaching machine has a body which is divided into two sections by means of a partition wall, one of the sections of the body accommodates a draw-out cassette containing a control program which consists of columns of questions and correct answers to them. The other section accommodates sheets with answers to be evaluated, and the body wall adjoining the latter section features a transparent window. Mounted in the body is a locking mechanism adapted to prevent the drawing-out of the cassette up to the column of correct answers when the section accommodating the answers to be evaluated is opened and to provide for the opening of the latter section after covering the correct answers.

3,707,781
APPARATUS FOR SIMULATING ROADWAY DRIVING CONDITIONS
Richard L. Brown, Bellevue, Nebr., assignor to Bally Manufacturing Corp., Chicago, Ill.
Filed Nov. 22, 1971, Ser. No. 201,030
Int. Cl. G09b 9/02
U.S. Cl. 35—11 11 Claims



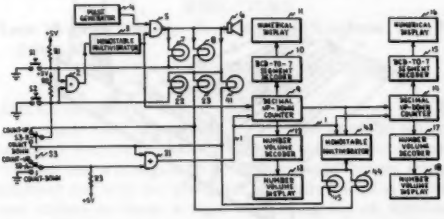
There is provided apparatus enabling an externally positioned operator to peer forwardly into an upright hollow housing containing therewithin and forwardly of a light-transmissive mirror a simulated roadway including a plurality of miniature intra-lanes road-vehicles arranged columnarly and seemingly traveling along transversely distinct respective roadway lanes, a transversely movably controllable miniature free-vehicle realistically optically superimposed upon the simulated roadway by the intervening light-transmissive mirror, the apparatus operator being able to remotely control the free-vehicle's seeming transverse position and longitudinal velocity with respect to the simulated roadway, and automatic transverse motivation means for abruptly translating the free-vehicle transversely with respect to the simulated roadway when a seeming collision occurs between it and a road-vehicle. Preferred optical characteristics for imparting realism to the apparatus include: a hollow housing that is substantially opaque (with the exception of the operator's viewing opening); novel lumination and fluorescent coloring for the roadway and the several miniature vehicles; and special techniques for imparting seeming relative longitudinal velocity to the several miniature vehicles.

3,707,782
NECK FOR TEST DUMMY
Samuel W. Alderson, New York, N.Y., assignor to Alderson Research Laboratories, Inc., Stamford, Conn.
Filed June 23, 1971, Ser. No. 155,842
Int. Cl. G09b 23/32
U.S. Cl. 35—17 8 Claims



An anthropomorphic test dummy wherein the simulated flesh section forming the neck defines a body of revolution at each end. The thoracic and head sections each defines a mating socket. In this manner, reasonable human contours are retained throughout the limits of normal motion of the head and neck.

3,707,783
TEACHING MACHINE
Marian S. Hajduk, 150-48 29th Avenue, Flushing, N.Y.
Filed April 12, 1971, Ser. No. 133,302
Int. Cl. G09b 19/02
U.S. Cl. 35—31 R 22 Claims

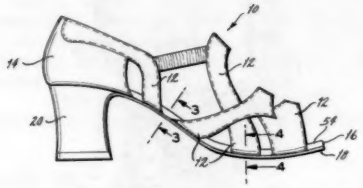


A teaching machine, on a given number of depressions of a first button, which makes a distinct sound with each depres-

sion, lights that number of lamps in a first 3 by 3 matrix in a given order to show the groups of 1's, 2's, and/or 3's which make up that given number. A second button, on each depression, unlights a single lamp to show subtraction. A second 3 by 3 matrix of lamps has one lamp light after all lamps are lit in the first matrix on depression of the first button which then turns off the bulbs of the first matrix. This second matrix shows the decimal concept of number from ten up. Numerical indicators show the numbers represented. Arrows pointing between the matrixes show the addition of nine plus one moving from the first units matrix to the second tens matrix or the subtraction of ten minus one moving from the second tens matrix to the first units matrix. A square overlay divided into three zones is placed over at least the first units matrix with the zones in a horizontal or a vertical position to selectively indicate different groupings of lamps making up a given indicated number.

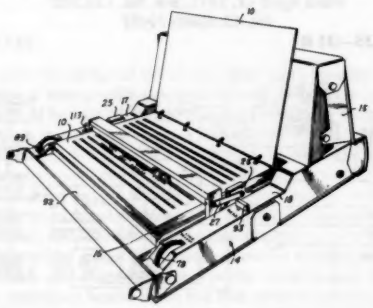
Specific circuitry is used so that each additional lamp in a matrix which is lit lights all the other required bulbs to indicate a given number.

3,707,784
CUSHION INSOLE FOR SHOES
Cleo Stafford, 411 North 7th St., Corning, Ark.
Filed Oct. 19, 1971, Ser. No. 190,497
Int. Cl. A43b *3/12*
U.S. Cl. 36—11.5 **10 Claims**



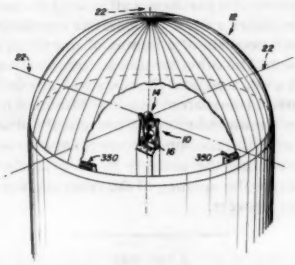
A composite insole for shoes is disclosed including a generally rigid upper layer and a resilient and compressible lower layer which underlies the upper layer throughout and is laminated thereto. Spaced upper elements of a shoe are impressed through a binding element, attached to the insole, into the resilient and compressible lower layer in order to provide a substantially uninterrupted bottom binding surface to which a shoe outsole is attached. Heel attachment, without openings, and with a smooth, sculptured appearance for the shoe upper is also disclosed.

3,707,785
TEACHING APPARATUS
Bruce D. Reed, 2112 Cloverdale, Arlington, Tex., and Herbert Franklin O'Dell, 807 J Place, Plano, Tex.
Filed Dec. 11, 1970, Ser. No. 97,230
Int. Cl. G09b *5/06;* **G11b** *5/00*
U.S. Cl. 35—35 C **16 Claims**



Apparatus for presenting information in both audible and either visible or tactile form includes a base for supporting and locating one or more lesson cards on which the information is presented in adjacent horizontal lines. The apparatus includes a carriage movable across the base for line selection, with the line selection carriage carrying two laterally movable carriages. One laterally movable read carriage carries a pick-up head, for detecting the line of magnetically recorded information, and an indicator for indicating the corresponding visible or tactile information. The other laterally movable control carriage coacts with cam means on the base for effecting line-by-line advance of the line selection carriage, and coacts with control means for controlling the operation of the apparatus.

3,707,786
METHOD AND MEANS OF PRESENTING A PLANETARIUM DISPLAY
William T. Clark, P. O. Box 885, Jackson, Miss.
Filed Feb. 5, 1968, Ser. No. 703,009
Int. Cl. G09b *27/00*
U.S. Cl. 35—42.5 **3 Claims**

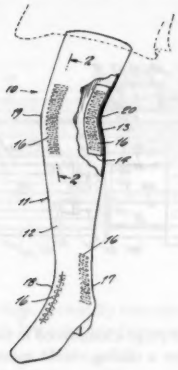


The provision of a planetarium projector provided with a near-point light source for the projection of the star images and including means for mounting, and maintaining, a star projection sphere concentric with the underside of a hemispherical dome within which the projector means is operatively positioned, to provide a highly realistic, accurate reproduction of the heavens as they appear from a given observation point upon the surface of the earth. The planetarium projector means also includes optical projection means for the sun, moon and planets which includes means for eliminating parallax from these projectors due to their somewhat non-concentric placement relative to the projection dome. Still further, the utilization of a point light source provided with means for decreasing the intensity of the lamp toward that portion thereof responsible for the projection of the fixed star images in the equatorial regions of the projection dome provides a unique method of presenting a planetarium display characterized by a high degree of realism in the projected night sky.

3,707,787
FLAT SPRING FOR BOOTS AND SHOES
Kathryn Hughes, 1204 Leet Rd., Niles, Mich.
Filed Oct. 20, 1970, Ser. No. 82,267
Int. Cl. A43b *00/00*
U.S. Cl. 36—2.5 R **1 Claim**

A footwear constructed with a generally flat coil spring

between the outer leather lining, the spring being located at parts of the footwear which are subject to excessive amount of

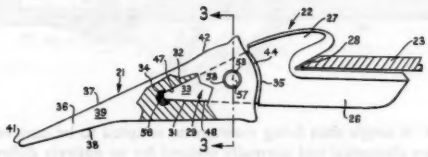


bending and flexing; the present spring preventing the formation of objectionable wrinkles in the footwear appearance.

ERRATUM

For Class 36—11.5 see:
Patent No. 3,707,784

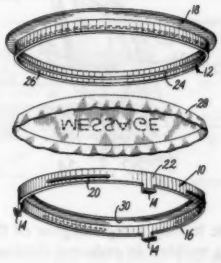
3,707,788
LOCKING MEANS FOR CAP-TYPE TOOTH
Walter L. Sturgeon, Los Altos, Calif., assignor to Pengo Corporation, Sunnyvale, Calif.
Filed Dec. 28, 1970, Ser. No. 101,859
Int. Cl. E02f *9/28*
U.S. Cl. 37—142 A **11 Claims**



Improved retaining means for a tooth having a blade formed at its proximal end with a pocket which receives a shank attached by welding, bolting, etc., to earth excavating equipment. A resilient insert is positioned in the distal end of the pocket. Holes in the pocket walls and shank are initially slightly offset. The resilient insert is deformed by the distal end of the shank when a hard pin is driven through the holes, thereby bringing the holes up to alignment, forcing the tooth rearwardly and causing the margins of the holes in the pocket walls to tightly engage the pin and prevent unintentional dislodgement of the pin. When it is necessary to replace the tooth, the pin may be forcibly driven out of the holes.

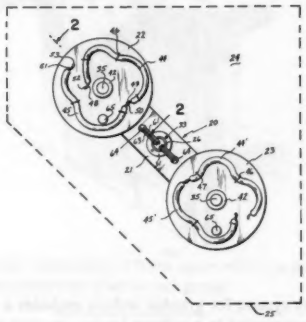
3,707,789
TIRE CENTER DISPLAY APPARATUS
William S. Hart, Commack, N.Y., assignor to Dinaco, Inc., New York, N.Y.
Filed Nov. 26, 1971, Ser. No. 202,206
Int. Cl. G09f *1/00*
U.S. Cl. 40—125 M **7 Claims**

A sheet of plastic film having a message printed thereon is stretched across the center opening of two concentric rings. The sheet passes between the mating surfaces of the rings which are held in the opening in the center of a tire. The outer ring includes a flange that engages the exterior surface of the side wall of the tire, and the inner ring includes several lugs



that engage the inner periphery of the wall. The mating surfaces of the rings are provided with recesses and projections that engage each other to hold the inner and outer rings together.

3,707,790
ILLUMINATED DISPLAY DEVICE
Morris D. Jaffe, Jr., 300 Alameda Circle, San Antonio, Tex.
Filed March 31, 1970, Ser. No. 24,284
Int. Cl. G09f *13/30*
U.S. Cl. 40—34 **7 Claims**

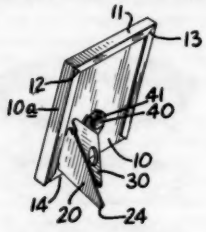


A display device comprising a rotatably driven member and discs rotatably mounted thereon with illuminating means of different colors secured in desired patterns on said discs whereby selective energization of said member and said illuminating means results in varying displays.

3,707,791
EASEL BACK HAVING INTEGRAL SUPPORTING STRUCTURE
Leon M. Levy, Chicago, Ill., assignor to Condecor, Inc., Mundelein, Ill.
Filed March 12, 1971, Ser. No. 123,714
Int. Cl. G09f *1/00*
U.S. Cl. 40—124.1 **11 Claims**

An easel back for supporting a photo frame in which the structure includes a backing member, a triangular supporting member and a triangular bracing member all hinged integrally together and with the triangular members folded at the hinges and locked to form a rigid supporting leg of tetrahedron shape. The triangular members are foldable as a unit against the backing member for transport in compact, non-set-up condition. The same supporting tetrahedron serves as a leg to

stand the frame for either horizontal or vertical viewing. The parts are preferably molded as a single, or integral, unit employing a plastic having a high degree of flexibility and with scorelines being molded in reduced thickness for facilitating relative bending.



3,707,792

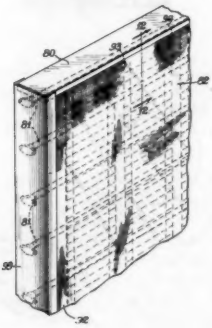
GRAPHIC DISPLAY SYSTEM

Lindell E. Mabrey, 729 Old Trail, Highland Park, Ill., and . Richard C. Fogelson, 431 Oakdale, Chicago, Ill.

Continuation of Ser. No. 734,414, June 4, 1968, abandoned. This application July 19, 1971, Ser. No. 164,069

Int. Cl. G09f 13/12

U.S. Cl. 40—219 **2 Claims**



A display system for graphic indicia includes a source of illumination mounted in a cabinet having an open viewing side. A light-diffusion plate is mounted in the opening of the cabinet; and a glass plate having a low light transmissivity is mounted in front of the diffusion plate, and it forms part of the cabinet structure for the light source. A plastic plate bearing a negative reproduction of the indicia to be displayed is removably interposed between the diffusion plate and the glass plate; and there is provision for overlapping of opaque areas of superposed indicia-bearing plates to form a complete light seal except of the transparent indicia itself. A transparent color film of plate may, if desired, be interposed between the diffusion plate and the indicia plate or film.

3,707,793

TEAR GAS FIRE ARM MEANS

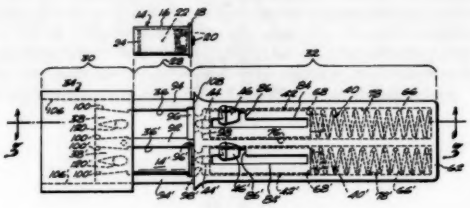
Samuel Pearce Holton, II, 4510 S. W. 74th Street, South Miami, Fla.

Filed Sept. 25, 1970, Ser. No. 75,534

Int. Cl. F41c 3/00, 9/00

U.S. Cl. 42—1 G **10 Claims**

A hand gun and cartridges therefor, each cartridge being provided with a charge of tear gas or other toxic substance. The gun is generally of elongate compact configuration and is provided with a breech section defining a chamber for receiving tear gas cartridges. The gun includes an elongate stock portion of a size adapted for gripping in the palm of the hand of a user and thumb operative plunger means for selectively discharging a cartridge chambered in the breech section of the gun, and includes a sliding shield member translationally adjustable between positions covering and uncovering the breech chamber.



3,707,794

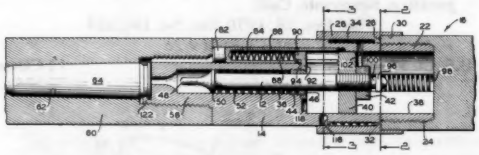
CONCEALED SINGLE SHOT FIRING MECHANISM

John G. Rocha, Westfield, and Richard W. Livingston, Springfield, both of Mass., assignors to The United States of America as represented by the Secretary of the Army

Filed April 16, 1963, Ser. No. 273,533

Int. Cl. F41c 9/00, 9/04, 19/00

U.S. Cl. 42—1 J **10 Claims**



1. A single shot firing mechanism adapted to be concealed in an elongated rod normally utilized for an entirely different purpose comprising, a tubular housing forming a section of the rod, a barrel portion removably secured to the forward end of said housing for holding a cartridge in position to be fired, a forwardly biased striker longitudinally disposed in said housing for firing contact with the cartridge, a cylindrical sear secured to the rear end of said striker, a cocking rod disposed in said housing in simultaneous contact with the breech face of said barrel portion and the front face of said sear for retaining said striker in a cocked position, a firing ring surrounding the junction of said housing and said rod for rotatable and slidable movement thereon, and means for transferring the rotation of said firing ring to said sear to release said striker for movement into firing contact with the cartridge.

3,707,795

CYLINDER BREECH FOR SMALL FIREARMS

Heinz Bielfeldt, 233 Eckernforde, Germany, assignor to J. P. Sauer & Sohn GmbH, Eckernforde, Germany

Filed March 22, 1971, Ser. No. 126,462

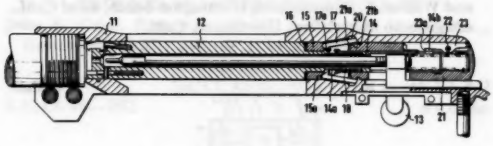
Claims priority, application Germany, Nov. 19, 1970, P 20 56 929.3

Int. Cl. F41c 11/06; F41d 1/00

U.S. Cl. 42—16 **7 Claims**

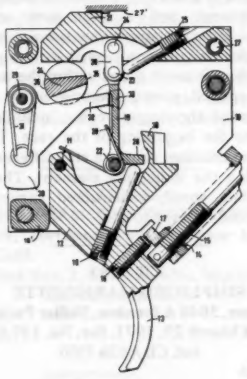
A breech mechanism wherein a bolt actuated locking sleeve

is telescopingly mounted on a breech bolt and is operable to



cam breech bolt locking lugs outwardly into abutting cooperation with forwardly facing, breech chamber recess wall means.

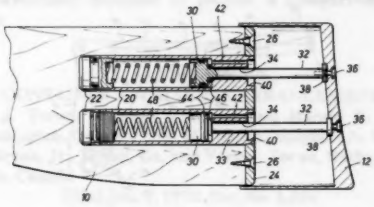
3,707,796
SAFETY APPARATUS FOR A GUN TRIGGERING MECHANISM
Heinz Bielfeldt, 233 Eckernforde, Germany, assignor to J. P. Sauer & Sohn GmbH, Eckernforde, Germany
Filed March 22, 1971, Ser. No. 126,438
Claims priority, application Germany, Dec. 2, 1970, P 20 59 396.8
Int. Cl. F41c *17/00*, *17/08*
U.S. Cl. 42—70 C **9 Claims**



A safety device for preventing unintentional firing of a gun comprising an easily-rotatable mass part mounted on the gun and having a stop which is in alignment with a recess in the triggering mechanism when the mass part is at rest, thus permitting movement of the triggering mechanism to fire the gun. When the gun is subjected to a force great enough to cause an unintentional firing, the mass part will be rotated by the force to a non-rest position wherein the stop is unaligned with the recess and prevents movement of the trigger mechanism for firing the gun. When the force diminishes, the mass part returns to its rest position to permit the gun to be fired.

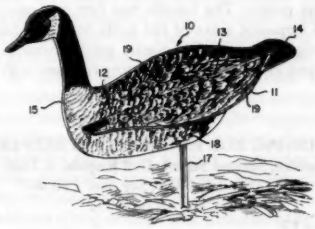
3,707,797
RECOIL ABSORBER
Kenneth Ruth, P.O. Box 7039, Corpus Christi, Tex.
Filed Nov. 18, 1970, Ser. No. 90,690
Int. Cl. F41c *23/00*
U.S. Cl. 42—74 **10 Claims**

A recoil absorber for a firearm having a shoulder stock. A sleeve member is telescopically mounted at the rear end of the stock and attached to the end of at least one piston rod which is connected to a piston slidably disposed in a cylinder. The cylinder is mounted in the butt end of the stock and is sealingly closed at its forward end. A spring is mounted



between the forward end and the piston. The piston rod projects rearwardly through a relatively long bore hole in the rear wall of the cylinder and the rod side of said piston and cylinder is vented to the atmosphere through a hole in the rear wall.

3,707,798
DECOY
Ned A. Tryon, Kent Island, Chester, Md.
Filed Dec. 31, 1970, Ser. No. 103,147
Int. Cl. A01m *31/06*
U.S. Cl. 43—3 **3 Claims**



A goose decoy comprising a form upon which is mounted a color photoreproduction of an actual goose.

3,707,799
FISH NET RETRIEVAL APPARATUS
Lowell J. Hatley, 5452 40th Avenue West, Seattle, Wash.
Filed Aug. 10, 1970, Ser. No. 62,516
Int. Cl. A01k *69/02*
U.S. Cl. 43—8 **13 Claims**

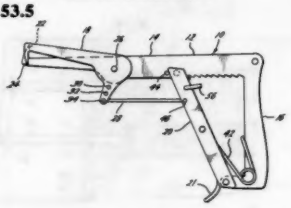
Mechanically, this apparatus comprises two spaced-apart spools or drums and an endless belt running around these drums. There is a means to power the drums and the endless belt for reeling in the fishing net.

3,707,800

FISH MOUTH SPREADER AND HOLDER

Charles S. Wolfe, 2316 Norman, Pasadena, Tex.

Filed Sept. 2, 1971, Ser. No. 177,250
Int. Cl. A01k 97/00
U.S. Cl. 43—53.5 **6 Claims**



A fish mouth spreader and holder which can be held and actuated with one hand, easily operated to open the mouth of a fish, hold the fish while removing a hook, and carry the fish, all without touching the fish thereby avoiding being bitten, finned or soiled. The device comprises an L-shaped body the short side forming a portion of a pistol grip and with a piercing point extending generally perpendicularly from the long side of the body. An arm is pivotally secured to the body having a second piercing point extending therefrom and is actuated by a pistol grip handle pivotably secured to the end of the body's short side and connected to the arm by an actuating shaft. A ratchet mechanism is provided on the handle coacting with the free end of the handle for extending and holding the points in a set position with a ratchet releasing means on the handle for deactuating the apparatus with a single hand. The arm includes a plurality of pivot connections for selectively changing the stroke of the points. The handle has first and second spaced portions on opposite sides of the body for providing a sturdy yet light weight device with plastic guide members between the handle and the body for preventing rust and corrosion.

3,707,801

FISHING ROD HOLDER WITH BEEPER

Louis Gednalske, Second Street, Dell Rapids, S. Dak.

Filed Dec. 21, 1971, Ser. No. 210,407
Int. Cl. A01k 97/12
U.S. Cl. 43—17 **8 Claims**

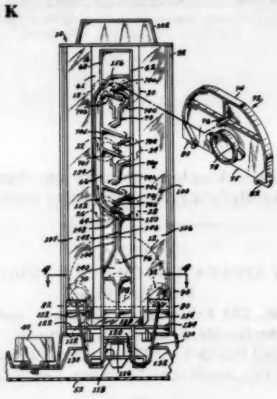
A tubular fishing rod holder is fixedly superimposed axially on the front face of an inherently flexible but sturdy vertical supporting standard, that is adapted to be staked in the ground or attached to a boat or similar support, and an alarm casing is fixed to such face of the standard immediately below the lower open end of the holder. Such casing provides a bottom for the holder, in which the butt end of a fishing rod is snugly socketed, and encloses a self-contained alarm unit that has a switch contact button slidably disposed through the front face of the casing. The button is activated by an overlying finger that integrally depends from the front portion of the edge of the lower end of the holder upon a predetermined amount of flexure of the supporting standard in response to the tug of a hooked fish on the fishing line of a reel which is mounted on the fishing rod.

3,707,802

DELAYED STARTING INDICATOR APPARATUS AND TOY STARTING SYSTEM

James I. Tucker, Jr., Manhattan Beach; Joseph H. Bales, Huntington Beach; Denis V. Bosley, Palos Verdes Peninsula; Brian S. Prodger, Torrance; Kurt Ruppel, Redondo Beach, and William F. Summerfield, Huntington Beach, all of Calif., assignors to Mattel, Inc., Hawthorne, Calif.

Filed Jan. 21, 1971, Ser. No. 108,496
Int. Cl. A63h 33/00
U.S. Cl. 46—1 K **3 Claims**



A starting system having a delayed starting indicator apparatus comprised of a housing, a movable indicating element, a resetting element and a premature start indicator mechanism. The indicator apparatus simulates a "Christmas Tree" starting device commonly used for drag races. As the movable indicating element drops within the housing in a retarded fashion, spaced, paired openings in the housing make visible a sequential showing of color including a different color to indicate the beginning of the race. The premature start indicator mechanism causes a still different color to appear by offsetting the indicating element. The apparatus is easy to manipulate, simply constructed, rugged, inexpensive to manufacture and exciting to use.

3,707,803

SIMPLIFIED MARIONETTE

Richard F. Palmer, 3840 A Ivanhoe, Shiller Park, Ill.

Filed March 29, 1971, Ser. No. 129,011
Int. Cl. A63h 7/00
U.S. Cl. 46—126 **3 Claims**

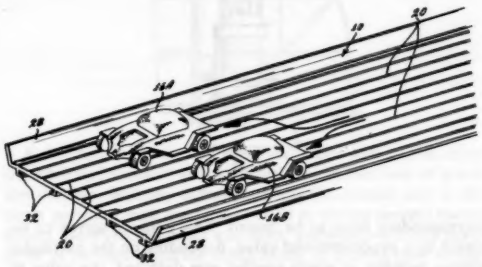
A marionette is manipulated by only three cords. One of these cords, which may be elastic, is secured to the top of the

head. The other two cords go down through the body commencing at the shoulders and are secured to the bottom of the legs.

3,707,804
GROOVED TRACK FOR TOY VEHICLES

John S. Cook, Sunnyvale, Calif., assignor to Mattel, Inc., Hawthorne, Calif.

Filed Aug. 25, 1970, Ser. No. 66,757
Int. Cl. A63h *19/30*
U.S. Cl. 46—202 **6 Claims**

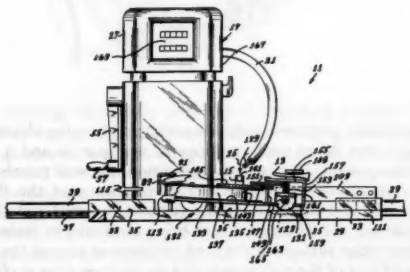


A track for self-powered or coasting type toy vehicles which allows passing of slower vehicles by faster ones by encourgaging lane changing when vehicles bump one another prior to passing, while thereafter reducing the tendency of vehicles to wander from one side of the track to the other. The track has several low ridges extending along its length for urging vehicles to run straight along the track, the ridges being low enough and being rounded to enable a vehicle to easily climb over them to another section of the track. The ridged track section is used along banked curves to reduce the tendency for vehicles to climb the curve and is used along straight-away sections to enable passing while reducing wandering tendencies.

3,707,805
TOY VEHICLE REMOTE WINDING APPARATUS

Gordon H. Buck, Torrance, Calif., assignor to Mattel, Inc., Hawthorne, Calif.

Filed Nov. 2, 1970, Ser. No. 86,012
Int. Cl. A63h *11/10*
U.S. Cl. 46—202 **10 Claims**



A winding device for providing a torque input to a mechanically powered toy vehicle situated remotely from the winding device, the torque being produced by the winding device and coupled to the toy vehicle through flexible coupling means such as a Bowden cable, for example. The winding device may be disposed in a housing simulating an automobile service station pump, and the Bowden cable may represent a fuel delivery hose. The housing may also be mounted on a base which includes a section of toy vehicle track whereon the vehicle travels, and, gate and twist restraining arrangement may be mounted on the base to stabilize the toy when the torque is introduced. The toy vehicle may preferably include a negator type mechanical motor in which spring-wound drums are horizontally mounted to provide a compact and low profile.

3,707,806
CONTAINER AND HANDLE ARRANGEMENT

Vern J. Toews, Ruthven, Ontario, and Harold E. Wigle, Leamington, Ontario, both of Canada, assignors to William P. Bryan, Jr., Tifton, Ga. and Vern J. Toews, Ruthven, Ontario, Canada

Filed Jan. 9, 1970, Ser. No. 1,806
Int. Cl. B65d *25/28;* **A01g** *9/02*
U.S. Cl. 47—34.13 **11 Claims**

A container set formed from a thermoplastic material including at least two containers which are joined together by an integral flexible strip or web. The containers have side walls which diverge in a direction toward the upper open end of the container. A handle extends upwardly from a location between the containers to facilitate lifting the container set. A wedge adjacent the lower end of the handle engages the facing side walls of opposed containers to prevent the containers from tipping toward each other when the container set is lifted by the handle. Several of the disclosed handles can be connected to the container by a stab-in movement from above the container without lifting or otherwise disturbing the container.

3,707,807
SEED COATING COMPOSITION

Thomas M. Graves, Richmond, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Division of Ser. No. 748,617, July 30, 1968, Pat. No. 3,598,565. This application Dec. 2, 1970, Ser. No. 94,559
Int. Cl. A01c *1/06;* **A01n** *5/00*
U.S. Cl. 47—57.6 **3 Claims**

Composition for treating seeds comprising an aqueous emulsion of a substantially water-soluble neutralized copolymer of an α,β-unsaturated monocarboxylic acid and a lower alkyl acrylate and a crosslinked copolymer of vinyl acetate and a lower alkyl acrylate. These compositions enhance the germination of the seeds.

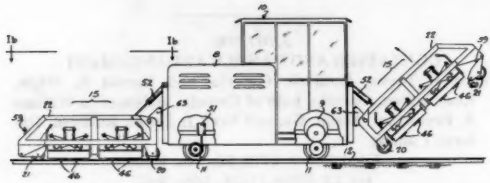
3,707,808
RAIL GRINDER

Raymond A. Danko, Minneapolis, Minn., and Donald L. Minge, New Hope, Minn., assignors to Mannix Construction Inc., Minneapolis, Minn.

Filed Oct. 5, 1970, Ser. No. 78,124
Int. Cl. B24b *23/00*
U.S. Cl. 51—178 **4 Claims**

Grinding stones of a mobile railroad rail grinder are arranged in pairs in grinding units that are themselves mounted in pairs in grinding modules pivotally mounted at both ends and on both sides of a central cab unit of the vehicle. The

modules are pivotable between raised and operative positions in which the stones contact the upper rail head surfaces. The vehicle is self-propelled and an underspeed detector raises the modules part way, enough to move the stones out of contact with the rails, if the vehicle speed diminishes below a



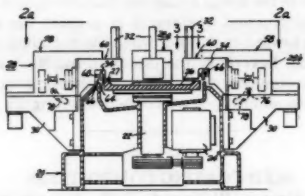
minimum. The grinding stones move up and down in pairs, the downward movement being restricted by dash pots to a very slow travel. These features enable the stones to span a trough in the rail head surface and to grind metal only from the higher points thus helping to eliminate rail depressions.

3,707,809

AUTOMATIC PROFILE GRINDING MACHINE WITH AN INDEXING MECHANISM

Oscar Schnellman, Zurich, Switzerland, and Henry Willy Stier, Dearborn Heights, Mich., assignors to Carmet Company, Pittsburgh, Pa.

Division of Ser. No. 751,879, Aug. 12, 1968, Pat. No. 3,598,192. This application April 28, 1971, Ser. No. 138,182
Claims priority, application Switzerland, Aug. 16, 1967, 11623/67
Int. Cl. B24b *47/20*
U.S. Cl. 51—215 H **9 Claims**



An automatic profile grinding machine with indexing mechanism especially for contour grinding of relatively small parts such as tool inserts, comprised of a grinding wheel, work stations arranged around said grinding wheel, universal work feeding mechanism associated with each work station, individual cam mechanisms for each work station to index the grinding steps, electric and fluid pressure control mechanisms to control operation of the machine, work measuring mechanism and adjusting mechanism associated with the measuring mechanism to compensate for wear or out of balance condition of the grinding wheel.

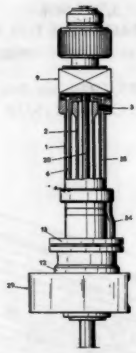
3,707,810

EXPANDIBLE HONING HEADS

Albert Grosseau, Chaville, France, assignor to S.A. Automobiles Citroen, Paris, France

Filed June 9, 1971, Ser. No. 151,204
Int. Cl. B24b *9/02, 49/00*
U.S. Cl. 51—346 **7 Claims**

A honing head is constructed with at least two honing members so that two co-axial bores, not necessarily of the same diameter can be honed simultaneously. A mechanism serves to expand the honing members simultaneously and in dependence upon the resistive torque detected by a detector. A pneumatic device including a nozzle connected in a circuit serves to detect when one of the honing members contacts the



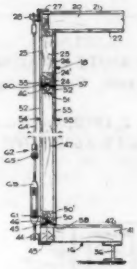
corresponding bore to be honed. This contact serves to increase by a predetermined value, depending on the particular honing member at which contact was detected, the value of the resistive torque.

3,707,811

SELF-PACKAGING PORTABLE HOUSING STRUCTURE

Jack E. Hampson, Calgary, Alberta, Canada, assignor to Atco Industries Ltd., Calgary, Alberta, Canada

Filed Sept. 24, 1970, Ser. No. 75,092
Claims priority, application Canada, July 31, 1970, 089,726
Int. Cl. E04h *1/12*
U.S. Cl. 52—23 **8 Claims**



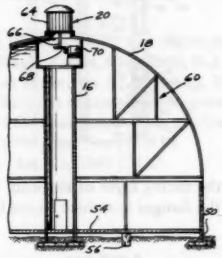
A portable, prefabricated, self-packaging housing structure having a box beam roof component, wall panels and a flat floor component. In an erected condition, the wall panels extend vertically between the roof component and the floor component and tie-down means connect the roof and floor components, the tie-down means being tensioned to maintain a bottom edge surface of the roof component against the top edge surfaces of the wall panels and the bottom edge surfaces of the wall panels against the upper peripheral edge surface of the floor component. The engaged surfaces of the roof component, wall panels and floor component are provided with mating keystrips and keyslots to increase the rigidity of the structure and to seal the joints against the weather. In a shipping condition, the wall panels are enclosed under the roof component which is secured by the tie-down, means directly on the floor component, whereby a package is formed which may be stacked with a number of like structures, one directly upon the other.

3,707,812

DWELLING

Julius Roessl, 40 Larkin Street, P.O. Box 433 Port Richmond, Staten Island, N.Y.

Filed Jan. 18, 1971, Ser. No. 107,134
Int. Cl. F03d 11/04
U.S. Cl. 52—27 1 Claim



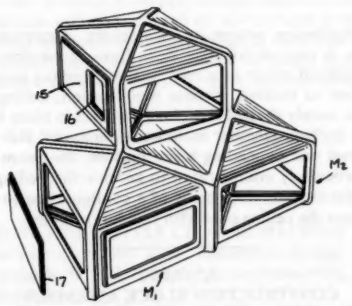
A dwelling comprises a cylindrical outer wall and an inner partition wall coaxial with a central pier in the form of a hollow column. Radially extending from the central pier to the inner partition wall are further walls to define several closed rooms. Between the outer and inner partition walls are partitions to provide separate living areas. A domed roof is supported by the central pier and extends to the outer wall. On the domed roof is a cupola including a wind-driven rotor which drives a generator supported by the central pier.

3,707,813

MODULAR STRUCTURE

Morris M. Cymbrowitz, 63-61 Yellowstone Blvd., Forest Hills, N.Y., and John C. Mudgett, 201 Clinton Street, Brooklyn, N.Y.

Filed June 30, 1971, Ser. No. 158,379
Int. Cl. E04h 1/00, 1/04
U.S. Cl. 52—79 8 Claims



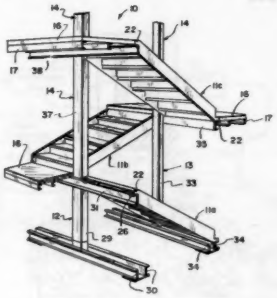
A building formed by an array of identical modules held together in a space frame, each module being constituted by four quadrants, having a wedge-like formation. Each quadrant is provided with a rectangular wall section, a triangular head section, and a triangular base section, the head section being sloped upwardly relative to the wall section, and the base section being sloped downwardly relative thereto, such that when the quadrants are joined together, the head sections thereof define a four-sided pyramidical dome and the base sections define an inverted pyramidical base of the same geometry. Channels are formed at the junctions of the quadrants to establish a four-branched channel network whose terminals are the vertexes of the head and base pyramids, such that when the modules are arrayed in side-by-side and stacked relation to create a multi-unit building they are locked together into a unitary structure by filling the channels with a moldable material that bridges the modules at their coincident channel positions to develop a space frame.

3,707,814

PRE-FABRICATED STAIRWAY

Glen A. Seegers, Lombard, Ill., assignor to American Stair Corporation, McCook, Ill.

Filed June 16, 1971, Ser. No. 153,637
Int. Cl. E04f 11/02
U.S. Cl. 52—185 8 Claims



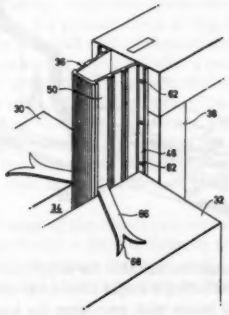
A stairway including a plurality of components including stair supporting masts and stair units. The stair support masts and stair units are stored and shipped as components and assembled into a stairway at the building site.

3,707,815

BUILDING CONSTRUCTION AND ELEMENTS FOR USE THEREIN

George Molyneux, Gisburn, England, assignor to Econa (G. & B.) Plastics Limited, Shirley, Solihull, England

Filed Jan. 13, 1970, Ser. No. 2,579
Claims priority, application England, March 11, 1969, 12,688/69; July 7, 1969, 34,191/69
Int. Cl. E06b 1/58, 1/32; E05b 1/02
U.S. Cl. 52—213 7 Claims



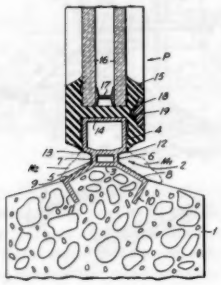
An upstanding channel member, serving as a mounting for a door or window frame, has a rectangular or trapezoidal central portion received with all-around clearance in a space between two adjoining wall elements and bears with one or two transverse base flanges upon an end face of one or both wall elements. Two flat anchor members, secured to opposite sides of the central channel portion by a dovetail fit, are independently shiftable along these surfaces to fit between courses of building blocks or bricks constituting the wall elements. The mortar bonding these courses together flows into the clearance around the central channel portion and holds it, together with the anchor members, in position between the wall elements.

3,707,816

PROTRUDING PANEL FRAME MEMBER EMBEDDED IN SURROUNDING CONCRETE FOR THE ATTACHMENT OF A WINDOW CONSTRUCTION

Hendrik Johan Van Wuyckuyse, Fwyidrecht, Netherlands, assignor to Schokbeton Products

Filed Oct. 21, 1970, Ser. No. 82,598
Int. Cl. E06b *1/16*
U.S. Cl. 52—213 **5 Claims**



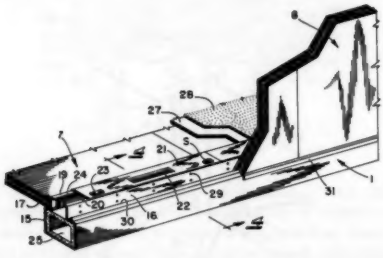
An elongated boss is formed with opposed recesses which are engaged by mold elements and held in place during the hardening of concrete in the mold. The boss becomes embedded in the hardened concrete and includes a projecting portion which can receive a flexible gasket of a glazing construction.

3,707,817

BUILDING CONSTRUCTION

Robert F. Schmitt, 399 Crossbrook Rd., and Edward A. Schmitt, 690 Wyleswood Dr., both of Berea, Ohio

Filed June 26, 1970, Ser. No. 50,140
Int. Cl. E04b *5/48*
U.S. Cl. 52—221 **21 Claims**



A building construction suitable for employment in low cost modular housing including a major structural element adapted to serve as a grade beam with provision for heating, cooling, and ventilating means as well as a raceway for electrical wiring. Such grade beam is designed to engage and support wall and floor members or panels to form a cooperative assembly therewith in a manner facilitating expeditious erection with a minimum use of skilled labor.

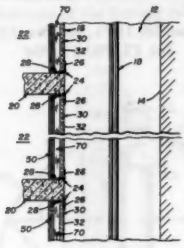
3,707,818

SHAFT CAVITY WALL AND STUD

Nels Nelsson, Des Plaines, Ill., assignor to United States Gypsum Company, Chicago, Ill.

Filed Nov. 10, 1970, Ser. No. 91,338
Int. Cl. E04b *2/28, 2/78*
U.S. Cl. 52—220 **9 Claims**

A cavity wall and stud wherein the stud is characterized by a base exposed to the corridor, and two side flanges which penetrate into the wall and thereafter diverge without closing upon themselves or each other, the ends of the flanges being



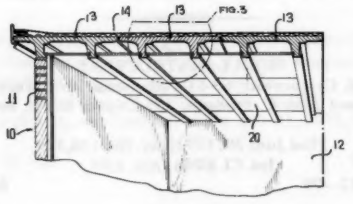
used to anchor the facing layer of the wall. Resiliency can be introduced into the flanges to reduce sound transmission.

3,707,819

DECKING SYSTEM

William D. Calhoun, Route 8, Box 328; William T. Hemsley, 501 S. Fourth Street, both of Chambersburg, Pa., and Charles M. Sioberg, 37 Hartzell Drive, Fayetteville, Pa.

Filed Dec. 1, 1970, Ser. No. 94,085
Int. Cl. E04b *5/26*; E04c *1/38*
U.S. Cl. 52—319 **4 Claims**



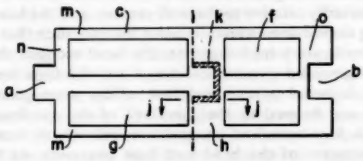
This disclosure relates to a decking construction for buildings. A precast concrete deck forming member, which may be utilized either as a roof or floor forming member, is constructed to receive, without modification, ceiling panels which are merely slipped into place and held in place by gravity. Each decking member includes a horizontal slab portion and at least one depending beam portion, the beam portion being particularly configurated to receive the ceiling panels and the decking member being of a configuration to provide space above the ceiling panels for building utilities.

3,707,820

CONSTRUCTION BLOCK ASSEMBLY

Raymond Leandri, 72 Boulevard de Reuilly, Paris, France

Filed Nov. 23, 1970, Ser. No. 91,707
Int. Cl. E04b *2/18*; E04c *7/10*
U.S. Cl. 52—436 **4 Claims**



The present invention concerns improvements in hollow building blocks, such as cement or cinder blocks and a method for assembling same. The hollow blocks of the present inven-

tion have a male tongue at one end, a groove for receiving the tongue at the opposite end, and an intermediate offset transverse web of a thickness slightly exceeding the depth of a groove. In assembly, the blocks of each course are arranged with tongues reversed from those of lower course and with each joint situated over the web of a lower block.

3,707,821

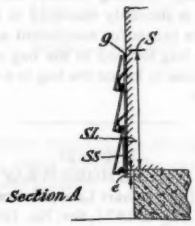
METHOD FOR INSTALLING ALUMINUM SIDING

Robert Leddy, 389 Mayer Court, Ridgefield, N.J.

Continuation-in-part of Ser. No. 67,929, Aug. 28, 1970, Pat. No. 3,662,510, which is a continuation-in-part of Ser. No. 875,031, Nov. 10, 1969, abandoned. This application Aug. 13, 1971, Ser. No. 171,615

Int. Cl. E04f *13/12*

U.S. Cl. 52—748 **4 Claims**



This disclosure relates to a new improved method for installing aluminum siding wherein a true level line is first established around the structure. A starter strip having a body portion greater than three inches and up to about six inches in width with a flange at the lower end thereof is installed at the true level line. A series of vertical stringer strips are attached to the structure with the squared off lower edges in substantially abutting relationship with the flange in the starter strip to thereby ensure true level alignment of clips located at predetermined distances (usually eight inches) along such stringers.

3,707,822

ROTATING BOTTLE CLOSING MACHINE

Leonardus Petrus van der Meer, Roelofsarendsveen, Netherlands, assignor to N.V. Leidsche Apparatenfabriek, Leiden, Netherlands

Filed March 16, 1971, Ser. No. 124,996

Claims priority, application Netherlands, Dec. 8, 1970, 7018308

Int. Cl. B65b *7/28*

U.S. Cl. 53—331.5 **7 Claims**

A rotating bottle closing machine provided with elevation adjustment for capsulation of bottles of different heights comprising a frame, a vertical shaft held against rotation carried by said frame, a driven main hub rotatably supported in the frame, rotatable about the axis of said vertical shaft and provided with a screw thread, an auxiliary means held against rotation relative to the vertical shaft and provided with a guiding track, an auxiliary hub also rotatable about the vertical shaft supported by said auxiliary means and provided with a screw thread cooperating with the screw thread of said main hub, whereby the elevation adjustment is carried by turning the auxiliary hub relative to the main hub, closing spindles for the bottles to be capsulated supported from said guide track, and lock means to fix the auxiliary hub relative to the main hub.

3,707,823

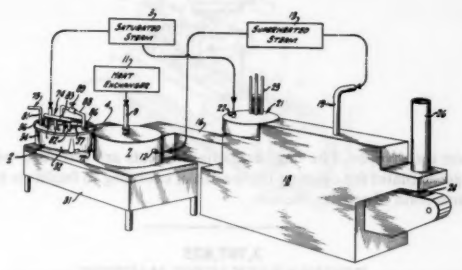
PRESERVING PRODUCTS IN SEALED CONTAINERS

Gerhart A. Guckel, Los Altos, Calif., assignor to James Dole Corporation, San Francisco, Calif.

Division of Ser. No. 741,393, July 1, 1968, Pat. No. 3,606,997. This application April 2, 1971, Ser. No. 130,668

Int. Cl. B65b *55/06*

U.S. Cl. 53—112 R **5 Claims**



A horizontally positioned rotor in an aseptic canning system, particularly adapted for glass jar containers, is rotatable about an upright axis in an enclosed container sterilizer housing having an entrance and an exit for the containers. A plurality of peripheral pockets open toward the periphery of the rotor continuously convey the containers. Vacuum is applied to the pockets beyond the entrance to withdraw air, and saturated steam under superatmospheric pressure is applied between the vacuum and the exit to sterilize the containers. Pressure is relieved by a blaed connection between the steam application and the exit, which leads to a location adjacent but ahead of the entrance to thus provide a pressure seal against entrance of outside air into the sterile portion of such container sterilizer.

The rotor has a floating support on a bearing ring on the bottom of the housing, which also serves as a seal. The rotor spokes which form the pockets have spring pressed seals engageable with the side wall of the housing; and the rear wall of the respective pockets is provided with a cushioning bar and insulating shield adapted for glass jars, and allowing steam to flow around the back of the containers. The top of the rotor spokes are notched to expand the steam, and thus reduce its velocity, thereby minimizing bouncing of the containers in the pockets. ALso, the respective cushioning bars have retaining lips engageable over upper portions of the jars for the same purpose.

To effect discharge of the respective containers through the housing exit, a well allows them to drop by gravity and expose their bottom portions below the rotor; and a stripper member engages such exposed bottom portions to direct the containers to the exit.

3,707,824

BAG SUPPLYING DEVICE

Hiroshi Ishida; Isamu Isozaki, and Minoru Mukai, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Minami Ashigara-shi, Kanagawa, Japan

Filed June 28, 1971, Ser. No. 157,527

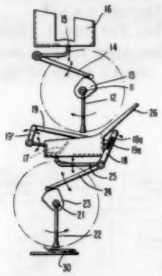
Claims priority, application Japan, June 30, 1970, 45/57052

Int. Cl. B65b *43/28*

U.S. Cl. 53—188 **11 Claims**

A bag supplying device comprising a first hopper, a second hopper, and a first bag supplying unit including a suction pipe for picking up bags in the first hopper one-by-one and feeding them to the second hopper. A second bag supplying unit in-

cludes a suction pipe for picking up the bags in the second hopper and supplying them to bag receiving brackets mounted

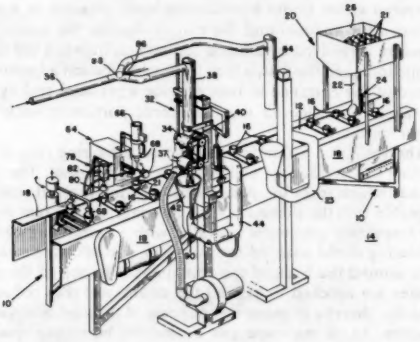


on a conveyor. The bag receiving brackets are provided with guide plates for opening the mouth of each bag to facilitate the insertion of articles therein.

3,707,825
HOSIERY PACKAGING MACHINE

Cecil R. Bell, Pinnacle; Jessie E. Swaim, Winston-Salem; Horace Paul Gilgo, Walkertown; Robert C. Rogers, Bethania; Walter Ray Sizemore, and Samuel M. Orr, Jr., both of Winston-Salem, all of N.C., assignors to Hanes Corporation, Winston-Salem, N.C.

Filed Dec. 23, 1970, Ser. No. 100,900
Int. Cl. B65b *5/04*
U.S. Cl. 53—282 **4 Claims**



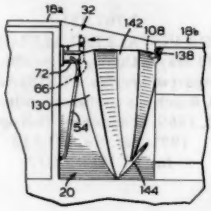
A packaging machine having a frame and an endless conveyor carrying a plurality of package receiving devices. A package feeding mechanism deposits at least portions of packages in the receiving devices, and articles to be packaged are subsequently positioned within the deposited package portions by an article feeding apparatus. A package closing device then provides a closure which is positively positioned to form a finished, and sealed package.

3,707,826
CHECK-OUT COUNTER

Edmund A. Cole, Cooksville, Ontario, Canada, assignor to Ernest C. Peters, Bramalea, Ontario, Canada, a part interest

Filed March 11, 1971, Ser. No. 123,294
Int. Cl. B65b *67/04, 67/12*
U.S. Cl. 53—384 **5 Claims**

A check-out counter for use in retail stores and including an automatic bag opening mechanism. The check-out counter consists of two counters arranged in a generally T-shaped configuration. A bag loading recess is formed in one of the counters at the intersection of the two counters and the bag opening mechanism is adapted to locate an open bag in the bag opening recess. The counter also includes a cash register support which is mounted for movement between two positions relative to one of the counters so that the check-out counter itself may be operated by one or two operators. Bag storage means is formed in one of the counters on one side of the

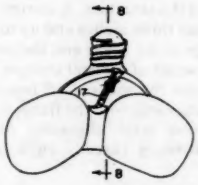


recess and the bag opening means includes a clamping mechanism which is movably mounted in the counter in the opposite side of the recess for movement across the recess to grip the edge of a bag located in the bag storage means and back across the recess to locate the bag in a vertically disposed open configuration.

3,707,827
SADDLE HORN WRAP

Donald E. Strang, 1411 Bohart Lane, Bozeman, Mont.

Filed Aug. 6, 1971, Ser. No. 169,683
Int. Cl. B68c *01/20*
U.S. Cl. 54—46 **5 Claims**



A strip of rubber having strap extensions at each end is wrapped around the horn of a western saddle to increase the friction thereof, and the strap ends are secured together by the Conway buckle, and the excess strap ends are cut after the wrap is completed. The rubber thereby increases the friction and a lariat rope is wound around the wrap in roping cattle in the usual way, but requires a less number of turns of the rope around the rubber-wrapped saddle horn.

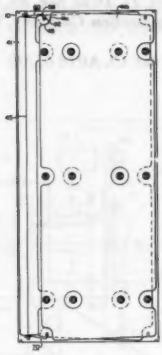
3,707,828
PRECIPITATOR CELL

Ivan T. Burney, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed June 24, 1970, Ser. No. 49,443
Int. Cl. B03c *3/40*
U.S. Cl. 55—138 **3 Claims**

A precipitator cell is provided with a plurality of spaced alternately oppositely charged collecting plate electrodes with certain spaced ones of the electrodes with the same one polarity of charge being projected to extend beyond the remainder of the plates in the direction against the direction of the gas flow to thereby form ionizing zones. Cantilever spring support means of electrically conductive sheet material are connected at their bases from respective ones of the elec-

trodes of the other polarity so as to have their free-ends cantilevered out over the ionizing zones. Ionizing wires are connected under tension between the spring support means to span the ionizing zones between the extension of the plate electrodes of the one polarity.

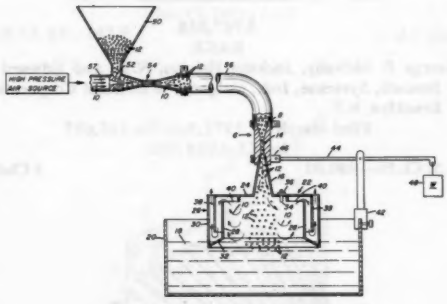


3,707,829

APPARATUS FOR INJECTING DRY SOLID PARTICLES INTO A LIQUID INCLUDING NOISE MUFFLING MEANS

Harris T. Siegel, Rochester, N.Y., assignor to Eastman Kodak Company Rochester, N.Y.

Filed Oct. 21, 1970, Ser. No. 82,650
Int. Cl. B01d *11/02*
U.S. Cl. 55—239 2 Claims



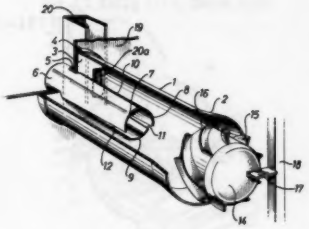
A process and apparatus for accelerating dry solid particles entrained in a fluid stream to a high velocity, and decreasing the velocity of the fluid stream without appreciably decreasing the velocity of the particles. The particles which are directed toward a liquid strike and enter the liquid where they are dissolved. The apparatus comprises a nozzle having a flared outlet for greatly decreasing the velocity of the exiting fluid stream so that upon striking the liquid, the fluid stream itself does not materially disturb the liquid, but without appreciably decreasing the velocity of the heavier dry particles which therefore continue to travel at high velocity, striking and penetrating the surface of the liquid. A muffler attached to the nozzle and partially immersed in the liquid muffles the noise generated by the apparatus.

3,707,830

CYCLONE SEPARATOR

Karl-Axel G. Gustavsson, Enkoping, Sweden, assignor to Aktiebolaget Bahco Ventilation, Enkoping, Sweden

Filed May 18, 1971, Ser. No. 144,574
Int. Cl. B01d *45/16*
U.S. Cl. 55—410 1 Claim



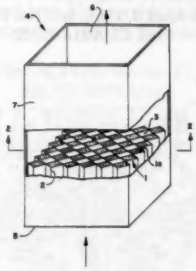
A cyclone separator having a cylindrical shell with a conical converging inlet portion. A ring of guide vanes is positioned within the outlet to impart a rotational flow to the entering gas and are axially moveable. At the opposite end of the shell a central tube extends through the end wall more than halfway into the shell, the tube having longitudinal slots tapered towards their free ends, the width being 20 to 40 percent of the diameter of the tube.

3,707,831

CORRUGATED GAUZE REACTOR

Frits M. Dautzenberg; Jaap E. Naber, and Cornelis W. J. Verwey, all of Amsterdam, Netherlands, assignors to Shell Oil Company, New York, N.Y.

Filed May 28, 1970, Ser. No. 41,460
Claims priority, application Netherlands, June 23, 1969, 6909550
Int. Cl. B01d *29/08*; B01j *9/04*
U.S. Cl. 55—483 3 Claims

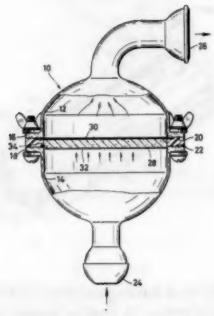


Apparatus for contacting a gas with a solid material comprising an assembly of tubular containers for the solid material which are mounted in a housing provided with a gas inlet and a gas outlet. The containers have gas-permeable walls and are positioned so that gas channels are formed along the containers by the walls of adjacent containers and/or the walls of adjacent containers and the walls of the housing. To construct the apparatus, a number of corrugated parallel gauze plates may be tack-welded together such that each plate forms a mirror image of an adjacent plate. When in use some of the channels thus formed contain solid material, and others are used as gas channels.

3,707,832
FILTER AND FILTER SUPPORT APPARATUS

Charles B. Muller, Houston, Tex., and Fred C. Jones, Addison, N.Y., assignors to Scientific Glass Blowing Company, Houston, Tex.

Filed Aug. 12, 1970, Ser. No. 63,086
Int. Cl. B01d 50/00
U.S. Cl. 55—486 11 Claims

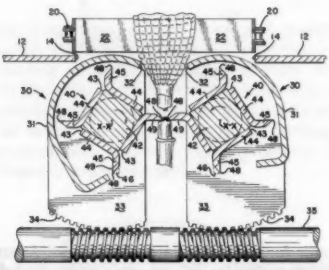


A filter and filter support apparatus according to the present invention comprises conduit sections having external flanges. A filter assembly is interposed between the flanges and includes a porous structural element having a resilient sealing periphery bonded to the outer periphery thereof and disposed in sealed engagement with both of the flanges. The resilient sealing periphery is provided with an inner peripheral recess disposed in co-planar relation with the upper surface of the porous structural element to define a filter membrane recess in which is retained a filter membrane or the like held into assembly by one of the flanges. The porous structural portion of the porous structural element is so related to the resilient sealing periphery that the filter support assembly is oriented in centered relationship with the internal periphery of the conduit sections.

3,707,833
CORN HARVESTER ROLLS

Ralph L. Sutton, Rock Island, Ill., assignor to International Harvester Company, Chicago, Ill.

Filed April 8, 1968, Ser. No. 719,587
Int. Cl. A01d 45/02
U.S. Cl. 56—104 6 Claims

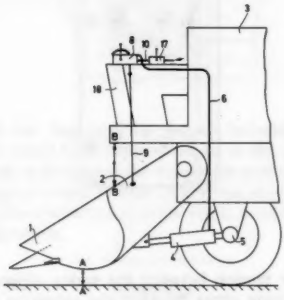


An apparatus for separating ears of sweet corn from the stalk for minimizing damage to the ears. The apparatus has blades with cutting edges that cut through a substantial portion of the stalk and then pull the stalk away from the ear to rupture the uncut portion of the stalk. The ears are held by stripper plates during the rupture of the stalks. The blades are arranged with respect to the stalk such that the pulling force is applied to the stalk over a large flat surface normal to the longitudinal axis of the stalk.

3,707,834
HEIGHT CONTROL DEVICE FOR A HARVESTER CUTTER

Gustav Schumaker, II, and Gunter Schumaker, borh of Haus Nr. 51, 5231 Eichelhardt, Germany

Filed Oct. 21, 1970, Ser. No. 82,639
Claims priority, application Germany, Oct. 24, 1969, P 19 53 644.8
Int. Cl. A01d 67/00
U.S. Cl. 56—208 6 Claims



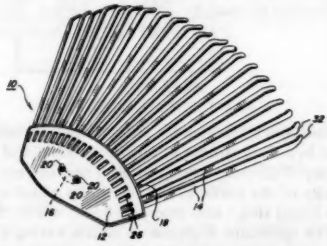
A height adjustment device for a harvester cutter has a control valve controlling a piston and cylinder for raising and lowering the cutter, a height control member which is adjustable for preselecting the ground clearance of the cutter and means responsive to the adjustment of the height control member and the position of the cutter for discontinuing the supply of pressure fluid to the piston and cylinder when the cutter has been lowered to a preselected position determined by the adjustment of the height control member.

In one arrangement, these means comprise a check valve between the control valve and the piston and cylinder, and in another arrangement a linkage for actuating the control valve.

3,707,835
RAKE

George P. McNally, Jackson Heights, N.Y., and Edward A. Jonasch, Syracuse, Ind., assignors to Glastool Corporation, Brooklyn, N.Y.

Filed March 18, 1971, Ser. No. 125,697
Int. Cl. A01d 7/00
U.S. Cl. 56—400.01 3 Claims



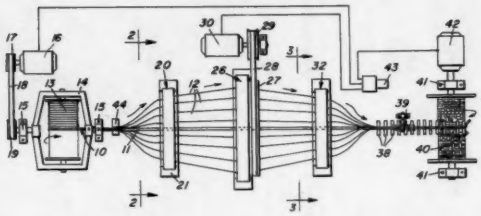
A garden rake in which the tines are formed of the heat and pressure molded product of a plurality of stacked layers of collimated glass filaments extending substantially in the longitudinal direction of the tines. Each layer of glass filaments is supported by a substrate and is coated with resinous means.

3,707,836

METHOD AND APPARATUS FOR ATTACHING FAIRING STRIPS TO CABLES

Stanley L. Lovett, Jr., Culpeper, Va., assignor to The Rochester Corporation, Culpeper, Va.

Filed April 29, 1971, Ser. No. 138,532
Int. Cl. D07b *3/00, 1/14, 7/18*
U.S. Cl. 57—1 UN 42 Claims



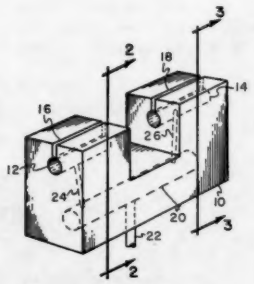
A method of attaching flexible fairing strips to a conventional cable having a core portion surrounded by a layer of armor wires includes unlaying all of the armor wires, inserting the fairing strips under the unlayed armor wires and re-laying the armor wires around the core portion, so that the fairing strips are fixedly secured. An apparatus for performing this method includes a swivel frame supporting the let-off reel, three bearing disk units for guiding and rotating the grouped armor wires, a support for a driven take-up reel and a manual control for operating the apparatus.

3,707,837

FIBRILLATION PROCESS

John D. Gibbon, 7000 Thermal Rd., Charlotte, N.C.

Continuation-in-part of Ser. No. 59,383, July 30, 1970. This application Sept. 9, 1970, Ser. No. 70,713
Int. Cl. D02g *1/16*
U.S. Cl. 57—157 F 5 Claims



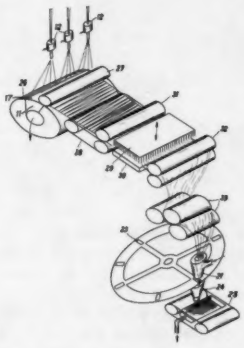
There is provided a commercial process for fibrillating a fibrillatable tape at windup speeds in excess of 500 feet per minute. In this process the tape is subjected to the action of at least four fluid twisting means wherein the direction of twist imparted to the tape is completely and sharply reversed between adjacent twisting means and the tape is advanced from one fluid twisting means to another while being maintained under a tension of from about 0.05 to about 0.2 grams per denier.

3,707,838

PROCESS FOR THE PRODUCTION OF STAPLE FIBERS

Oskar Dorschner, Bad Homburg; Franz Josef Carduck, Bergen Enkheim, and Norbert Kuhne, Dornigheim, all of Germany, assignors to Metallgesellschaft Aktiengesellschaft, Frankfurt am Main, Germany

Filed Aug. 25, 1969, Ser. No. 3,259
Claims priority, application Germany, Feb. 13, 1969, P 19 07 205.0; Aug. 24, 1968, P 17 85 203.8
Int. Cl. D02g *1/16;* D04h *3/00*
U.S. Cl. 57—157 R 17 Claims



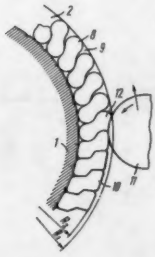
Staple fibers are produced continuously and rapidly from a thermoplastic material by spinning and drawing filaments from the thermoplastic material, projecting the spun filaments at high speeds onto a lay-down receiver partly disposed over a vacuum zone so that ropy fiber aggregates are laid down on the receiver outside the vacuum zone and a random web is formed on the receiver above the vacuum zone, consolidating the resulting non-uniform web, twisting it into a strand and cutting the strand into staple fibers.

3,707,839

METHOD OF MAKING A CLOSED LAYER OF SHAPED WIRE IN WIRE ROPES, ETC.

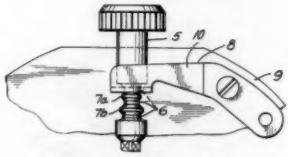
Mikhail Fedorovich Glushko; Viktor Klimentievich Skalatsky, both of Odessa, and Ivan Timofeevich Skripnik, Moscow, all of U.S.S.R., assignors to Odessky Politekhnichesky Institut, Odessa, U.S.S.R.

Filed Nov. 6, 1970, Ser. No. 87,395
Int. Cl. D07b *5/10*
U.S. Cl. 57—161 5 Claims



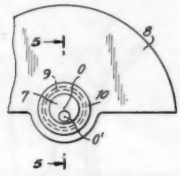
The making of a closed layer from shaped wires on ropes, cables and similar products in which shaped wires are wound on a rope core and in concurrent plastic squeezing of these wires for redistributing their material and changing their profile so that they become reliably interlocked throughout the entire layer.

3,707,840
STEM CONSTRUCTION IN A CALENDAR WATCH
Mamoru Miyasaka, Nagano-ken, Japan, assignor to Kabrishiki Kaisha Suwa Seikasha, Tokyo, Japan
Filed July 27, 1972, Ser. No. 166,373
Claims priority, application Japan, July 30, 1970, 45/75485
Int. Cl. G04b *19/24, 37/06*
U.S. Cl. 58—58 4 Claims



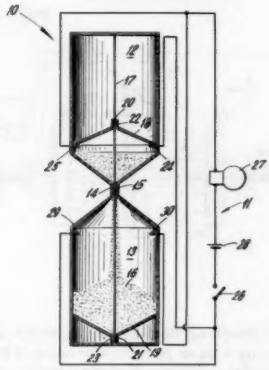
A watch stem in a calendar watch has a number of grooves thereon. One end of a spring, fastened at the other end to a base plate, is seated resiliently in one of the grooves. Movement of the watch stem in an axial direction requires that the seated end of the spring ride up on the walls of the grooves which are tapered. The resistance which must be overcome in moving the watch stem from one position to another can be varied by changing the angle of the groove walls and by changing the height of the walls between adjacent grooves.

3,707,841
ECCENTRIC CAM STRUCTURE FOR AN AUTOMATICALLY WOUND WATCH
Mamoru Miyasaka, Nagano-ken, Japan, assignor to Kabushiki Kaisha Suwa Seikasa, Tokyo, Japan
Filed Dec. 27, 1971, Ser. No. 212,245
Claims priority, application Japan, Dec. 28, 1970, 45/132712
Int. Cl. G04b *5/02*
U.S. Cl. 58—82 R 1 Claim



A cam for mounting in an oscillating weight in an automatically wound watch has a central axis and a lateral surface which is a surface of revolution about said central axis. The fact that the lateral surface is a surface of revolution simplifies the forming of the cam. The cam is then mounted eccentrically in the oscillating weight responsible for winding the watch.

3,707,842
SANDGLASS
David Spivak, One Washington Square Village, New York, N.Y.
Filed Sept. 30, 1971, Ser. No. 185,315
Int. Cl. G04f *1/06, 1/08*
U.S. Cl. 58—144 9 Claims

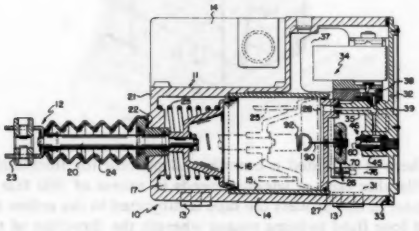


A sandglass is combined with an electrical signal actuator to give a signal when the sand has passed through the appropriate chamber.

3,707,843
PRIME MOVER SYSTEM UTILIZING BIS (TRIFLUOROMETHYL) BENZENE AS WORKING FLUID
Rex C. Conner, Englewood, and Louis L. Ferstandig, Ridgewood, both of N.J., assignors to Halocarbon Products Corporation, Hackensack, N.J.
Filed Jan. 4, 1972, Ser. No. 215,438
Int. Cl. F01k *25/00*
U.S. Cl. 60—36 11 Claims

An anti-pollution heat engine including a prime mover system wherein the working fluid comprises bis (trifluoromethyl) benzene.

3,707,844
HYDRAULIC ACTUATOR
Robert E. Brooks, Worthington, and Robert T. Marks, Columbus, both of Ohio, assignors to Ranco Incorporated, Columbus, Ohio
Filed Aug. 3, 1971, Ser. No. 168,596
Int. Cl. F15b *15/18*
U.S. Cl. 60—52 B 3 Claims



A hermetically sealed hydraulic actuator comprises a spring loaded piston and cylinder, the position of the piston in the cylinder being controlled by the output of a constantly

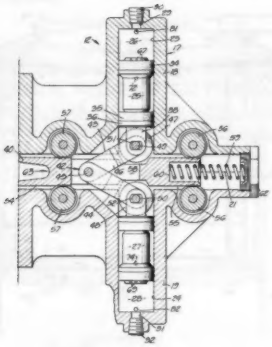
running fluid pump which withdraws oil from a sump in communication with the cylinder and discharges into the cylinder. The pump discharge may be more or less diverted from the cylinder to the sump by a diverter valve regulated by the movement of an electrically heated thermal element in the sump. The thermal element temperature is controlled by a suitable power supply circuit, which may respond to differences in a condition to be regulated by the actuator, and the effect of the element on the diverter valve for a given circuit response is adjustable by shifting the port of the diverter valve relative to the element. A screw accessible from the exterior of the sump shifts the diverter valve port.

3,707,845

DUAL MASTER CYLINDER ASSEMBLY

Robert E. Mitton, San Diego, Calif., assignor to Hal C. Johnson, Chula Vista; Shirley M. Jones, San Diego; Marie Jones and Eric D. Ross, National City, Calif., part interest to each

Filed Jan. 27, 1971, Ser. No. 110,022
Int. Cl. F15b 7/00; B60t 1/00
U.S. Cl. 60—54.6 R **6 Claims**



A dual master cylinder assembly for separately operating two hydraulic brake systems for a wheeled vehicle, employs two oppositely moving pistons in coaxial bores. An actuator extending transversely between the pistons carries toggle mechanism comprising a pair of links, one connected to each of the pistons, respectively. A roller at the pivotal connection between each link and its respective piston rolls on the bore surface to eliminate side loading and insure that only axial forces are applied to the pistons. As the toggle links straighten out the axial force on the pistons is multiplied.

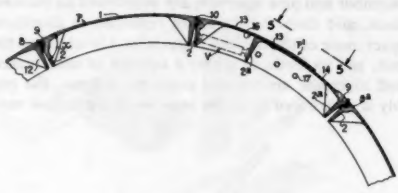
3,707,846

LININGS OR CASINGS FOR TUNNELS, GALLERIES, MINE PITS AND THE LIKE

Christian Georges Leblond, Atton, and Jacques Francois Marie Oger, Pont-A-Mousson, both of France, assignors to Centre De Recherches De Pont-A-Mousson Maidieres, Pont-A-Mousson, France

Filed Aug. 25, 1969, Ser. No. 852,602
Claims priority, application France, Aug. 27, 1968, 68164222
Int. Cl. E21d 11/14
U.S. Cl. 61—45 R **13 Claims**

Casings acting as circular-section revetments or coverings of cavities formed in the ground to resist the thrust of the ground; in said casing, a panel which adapts itself to the ground it must cover and which has an arcuate web bordered by inner flanges constituting a roughly rectangular frame, the web havong a meridian sectional shape having an outer bulge, the web being extended laterally by a frustoconical portion which is outwardly divergent and extends beyond the frame and defines a socket rabbet for assembly with a panel od an adjacent casing ring; the panel comprises, on one of the transverse flanges of its frame, at least one rib for assembly with an adjacent panel of the same casing panel and, in the transversely opposed flange, a support recess correspondint to and cooperating with said rib.

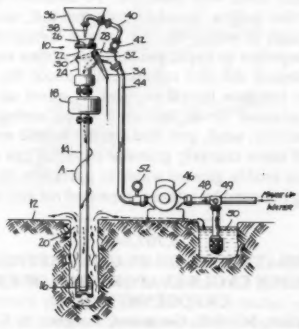


3,707,847

INSTALLATION OF SAND DRAINS

Augustus P. Godley, Hohokus; Francis M. Fuller, Washington Township, Bergen County; Charles R. Houk, Scotch Plains; Henry A. Nelson Holland, Ridgewood, and George J. Gendron, Oradell, all of N.J., assignors to Raymond International Inc., New York, N.Y.

Filed Feb. 6, 1968, Ser. No. 703,440
Int. Cl. E02b 11/00, 5/34
U.S. Cl. 61—11 **12 Claims**



Formation of sand drains in the earth by drilling and forcing a fluid at high velocity to wash out a hole and thereafter filling the hole by forcing filler material down through a pipe; the pipe being outfitted with special valve control means to control the flow of fluid and filler therethrough in generally inverse manner.

3,707,848

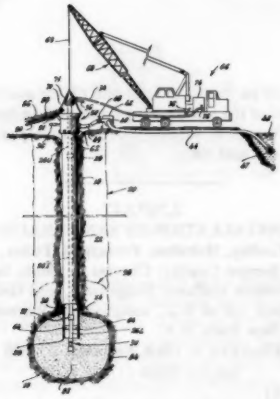
PROCESS AND SYSTEM FOR INCREASING LOAD-BEARING CAPACITY OF SOIL

Stephen V. Chelminski, West Redding, Conn., assignor to Bolt Associates, Inc., Norwalk, Conn.

Filed April 7, 1971, Ser. No. 131,919
Int. Cl. E02d 5/42, 5/44, 3/10
U.S. Cl. 61—11 **10 Claims**

Process and system for increasing the load bearing capacity of soil by producing load-bearing columns formed of densely compacted granular material, such as sand or gravel or of concrete. For producing each column, the granular material or concrete is fed down through a hollow member, and an air gun supported at the lower end of a pipe assembly extending down coaxially through the hollow member is actuated to produce powerful impulses to impel the soil outwardly away from the lower end of the hollow member to compact the soil

and then to impel the granular material or concrete outwardly to distribute it into the resulting cavity formed in the compacted soil. When sufficient material has been distributed and compaced by the powerful impulses from the air gun, the hollow member and pipe assembly are withdrawn an increment of distance, and then the steps are repeated to distribute and compact more of the desired material at a level above the first deposit, and so forth, to create a column of such material. If desired to create an encased concrete column, the pipe assembly is withdrawn from the interior of the hollow member,



which is then filled with concrete. To facilitate the initial insertion of the hollow member into the soil, water is jetted down through it while the air gun is actuated producing powerful impulses to impel the soil away from the lower end, and to compact the soil cylindrically about the descending member to enhance lateral support. A novel air gun energy source is adapted to be operated while embedded in soil, poured concrete, sand, grit, and similar hostile environments. Columns of more coarsely granular material can be produced in the soil to enable ground water to percolate up, the ground water being released by intense, repeated air gun impulses.

3,707,849

FRACTIONATION OF AIR BY USING REFRIGERATION FROM OPEN CYCLE EVAPORATION OF EXTERNAL CRYOGENIC LIQUID

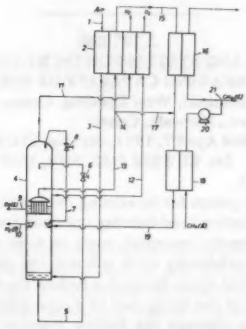
Rudolf Becker, Munich, Germany, assignor to Linde Aktiengesellschaft Zentrale Patentabteilung, Hollriegelskreuth, Germany

Filed March 3, 1970, Ser. No. 16,077

Claims priority, application Germany, March 7, 1969, P 19 11 765.8

Int. Cl. F25j *1/02, 3/04*

U.S. Cl. 62—40 **2 Claims**



A system for the low temperature fractionation of air is provided wherein gaseous nitrogen is withdrawn from the rectification column and passed in indirect heat exchange relationship with a vaporizing external refrigerant such as methane or natural gas. The resultant liquified nitrogen is recycled to the column and acts as reflux liquid therein. To provide make-up refrigeration for liquid products that are removed from the system without passing through the main heat exchanger, a portion of the withdrawn nitrogen is heated in the main heat exchanger, thereby cooling the incoming air. The warmed nitrogen is then pre-cooled and subsequently liquefied by the external refrigerant. The nitrogen recycle steps are conducted at approximately the same pressure of nitrogen thereby eliminating the need for compressor and expansion valves on said recycle line.

3,707,850

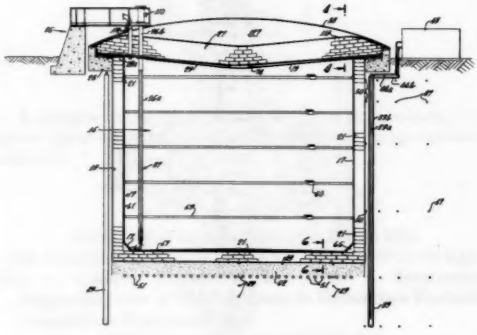
CRYOGENIC STORAGE TANK IMPROVEMENTS

Joseph A. Connell, Harbor City; Anthony J. Baranyi, Costa Mesa, and Paul V. Laylander, Irvine, all of Calif., assignors to Systems Capitol Corporation, Phoenix, Ariz.

Filed Oct. 12, 1970, Ser. No. 80,117

Int. Cl. F17c *1/00*

U.S. Cl. 62—45 **7 Claims**



Liquified gas is stored underground in a large double walled container seated in an opening in the earth's surface. Between the walls of the liner, thermal insulation is distributed in a continuous layer along the floor and wall of the opening. A diaphragm is supported across the top of the opening with a seal being provided between the diaphragm and the double walled liner to form a container for the liquified gas. Surrounding the lip of the opening is a concrete ring across which a net of cables is stretched to support a thermally insulating ceiling. A cooling system is provided for freezing the earth to aid in the excavation of the opening and this system is subsequently used to maintain the wall and floor of the opening frozen to a controlled thickness by cooling them in response to a rise in the temperature of the surrounding earth above a predetermined temperature level.

Also disclosed are various techniques for constructing a storage tank of the type described.

3,707,851

REFRIGERATION SYSTEM EFFICIENCY MONITOR

Robert B. McAshan, Jr., Houston, Tex., assignor to Machine Ice Co., Houston, Tex.

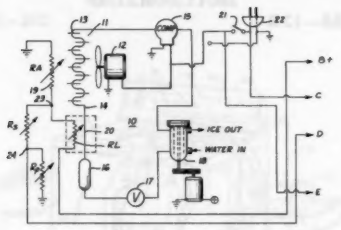
Filed Oct. 28, 1970, Ser. No. 84,837

Int. Cl. F25b *49/00*

U.S. Cl. 62—125 **23 Claims**

A monitor for monitoring and comparing the efficiency of operating conditions in a refrigeration system is disclosed. The monitor includes a first and second sensing means, such as thermistors, for sensing and comparing the values of two conditions in the system, such as an ambient temperature condition and the temperature of the refrigerant in the system, where these temperatures have a known relationship. A first

alarm signal or indication is provided when the difference between these temperatures exceeds a predetermined amount, and a second alarm signal or indication is provided when the differences between these temperatures is less than a



predetermined amount. The monitor also includes a delay circuit for delaying the application of voltage to the mechanism until a preset period after start up of said refrigeration system, and an alarm is also given in the event electric power is lost to the refrigeration system.

3,707,852

SEALING SLEEVE OF ELASTIC MATERIAL

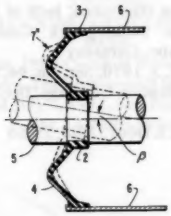
Manfred H. Burckhardt, Waiblingen, and Lutz Schafer, Stuttgart-Bad Cannstatt, both of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

Filed Sept. 27, 1968, Ser. No. 763,274

Claims priority, application Germany, Sept. 28, 1967, P 16 25 974.8

Int. Cl. F16d *3/84*

U.S. Cl. 64—32 F **11 Claims**



A sealing sleeve made from elastic material, particularly for sealing the gap between a joint part and a shaft in rapidly rotating, so-called homo-kinetic joints, in which the inner ring of the sealing sleeve abuts sealingly against the shaft and the outer ring against a joint part, whereby the outer ring and the inner ring are connected with each other by a conically constructed ring diaphragm which is deformable into a roller bellows in the installed position.

3,707,853

DEVICE FOR PRODUCING DOUBLE-SIDED LOOPED CLOTH UPON CROCHET GALLOON MACHINES

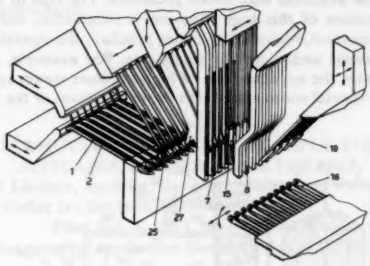
Heinz Lindner, Strasse de Freunschaft 331, and Georg Roscher, Thumer Strasse 210d, both of Geyer/Sa, Germany

Filed Aug. 30, 1967, Ser. No. 664,388

Int. Cl. D04b *23/06*

U.S. Cl. 66—84 **4 Claims**

Crochet galloon machines are improved for the purpose of making thereon double-sided looped cloth which does not have portions devoid of loops. This is achieved by providing the rear and/or the front loop holders at the locations of the



weft yarn pressure sinkers with slots, recesses or milled portions. The sinkers are vertically shifted and guided in these recesses.

3,707,854

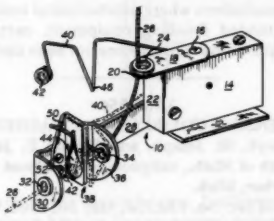
YARN CATCHER

George J. Matzel, Rego Park, N.N.Y., assignor to Stop-Motion Devices Corporation, Plainview, N.Y.

Filed May 3, 1971, Ser. No. 139,757

Int. Cl. D04b *15/48, 35/14*

U.S. Cl. 66—125 R **12 Claims**



A yarn catcher for a stop motion device used with knitting machines and the like, the stop motion device including a fly wire which carries the yarn into the yarn catcher when the yarn breaks. The yarn catcher comprises a bracket with a flange member attached to the stop motion device and an extending plate portion which is provided with an aperture through which the yarn passes and further is provided with a pair of leaf spring members being maintained in flexion against one another with the yarn being carried by the fly wire between the leaf spring members to be held thereby, and a cover plate member of a generally U-shape having leg members which sandwich the extending plate portion between respective opposite surfaces and selectively mask a portion of the aperture and guide the yarn between the leaf spring members when the yarn breaks.

3,707,855

GARMENT FINISHING COMBINATION

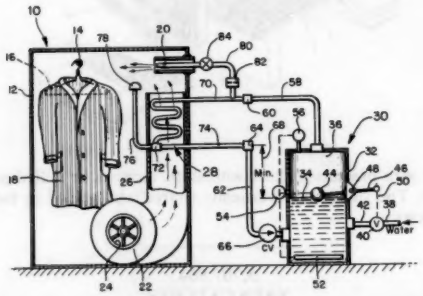
Norman A. Buckely, Wauwatosa, Wis., assignor to McGraw-Edison Company, Elgin, Ill.

Int. Cl. D06c *1/00*

U.S. Cl. 68—6 **10 Claims**

A garment finishing system comprised of a finisher having a heat exchanger and a steam discharge nozzle, and a low pressure steam boiler coupled to the finisher in a manner so that the finisher heat exchanger outlet is located vertically higher than the boiler water level thereby allowing gravity condensate return and infeed to the boiler, and makeup water infeed to the boiler generally from line pressure and without a pump.

Most professional cleaning plants have available high pressure steam systems generally between 55 and 125 psi, and consequently most garment finishers are designed to be used with these available high steam pressures. The cost of having steam boilers of this high pressure is substantial, but even more important, many safety codes preclude the operation of such systems under certain conditions. For example, under some codes the accepted use of high pressure steam systems requires special room enclosures for or locations of the boiler



and/or possibly the continued presence of a certified operator. The code distinction between low and high pressure steam systems frequently is made at 15 psig, based on ASME (American Society of Mechanical Engineers) and BOLA (Building Officials Conference of America).

Based in part on the above code restrictions, in coin-ops or self-service installations where non-technical customers would operate unattended finishing equipment, certain types of finishing equipment have heretofore not been used.

3,707,856

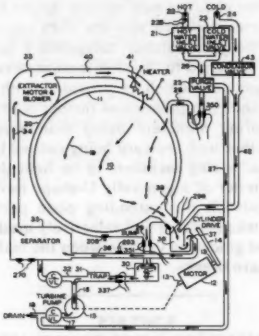
TOTAL SENSING COMBINATION WASHER-DRYER

Anthony Niewyk, St. Joseph, and Donald E. Janke, Benton Harbor, both of Mich., assignors to Whirlpool Corporation, Benton Harbor, Mich.

Division of Ser. No. 730,358, May 20, 1968, Pat. No. 3,575,193. This application Jan. 14, 1971, Ser. No. 136,276

Int. Cl. D06f *33/02*

U.S. Cl. 68—12 R **9 Claims**



A semielectronic control system for a combination washing and drying machine utilizing a solenoid-actuated stepping switch, each successive position of the switch controlling such functions as water fill, agitate, drain, extract, and dry making up the washer-dryer's cycle of operation. Energization of the solenoid is controlled either by RC timer circuitry having a number of selective delays or by circuitry responsive to sensed conditions. The stepping switch selects the appropriate delay in the RC timing circuitry or the proper condition responsive circuit which causes energization of the solenoid to advance the stepping switch to the next position.

3,707,857

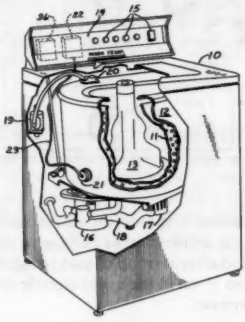
MULTI-PURPOSE SENSOR ASSEMBLY FOR AUTOMATIC WASHER

Robert T. Wigfall, St. Joseph, Mich., assignor to Whirlpool Corporation, Benton Harbor, Mich.

Filed Sept. 20, 1971, Ser. No. 181,891

Int. Cl. D06f *33/02*

U.S. Cl. 68—12 R **8 Claims**



A sensing system for a laundry appliance includes a pair of temperature responsive devices, heating means, and a thermally conductive disk which places one of the temperature responsive devices in good heat-flow relationship with the heating means and the washing fluid. The sensing system includes associated switching and biasing circuitry which enables the system to be used to sense a variety of machine functions.

3,707,858

WASHING MACHINES FOR CLOTHES AND OTHER ARTICLES

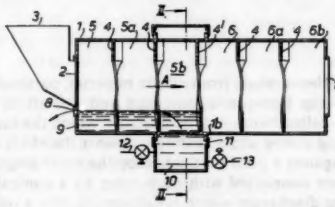
Fritz Gulzow, and Egon Hartmann, both of Hildesheim, Germany, assignors to Senkingwerk GmbH Kommanditgesellschaft, Hildesheim, Germany

Filed Dec. 3, 1970, Ser. No. 94,724

Claims priority, application Germany, Dec. 3, 1969, P 19 60 677.2

Int. Cl. D06f *37/08, 39/08*

U.S. Cl. 68—143 **3 Claims**



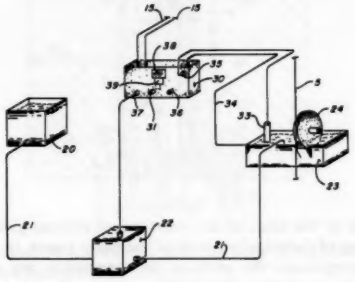
A washing machine comprises a drum rotatable about a horizontal axis and divided axially into a plurality of washing compartments and rinsing compartments. Hot water or other washing medium is fed into a final wash compartment from a housing surrounding the final wash compartment, the adjacent surface portion of the drum being perforated. The washing medium flows from the final wash compartment successively through the other washing compartments to be discharged from the drum at the charging end thereof.

3,707,859

APPARATUS FOR TREATING TEXTILE MATERIAL

Robert D. Carr; Harry T. Collier, and Clarence E. Jones, all of Hopewell, Va., assignors to Allied Chemical Corporation, Petersburg, Va.

Filed April 11, 1969, Ser. No. 815,440
Int. Cl. D06j 35/00
U.S. Cl. 68—202 3 Claims



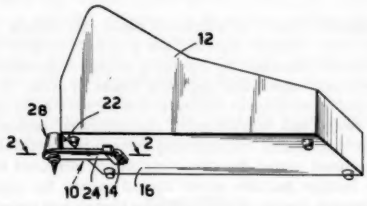
An apparatus for applying, controlling and monitoring the amount of liquid to moving filamentary material per unit length of the material by moving said material in wiping engagement with part of the surface of a driven roller, another part of which dips into a reservoir normally containing a prescribed amount of liquid, maintaining a specified level of liquid within the reservoir by means of a sensing element that activates a fill pump upon separation of the sensing element from the liquid level of the reservoir, and monitoring the amount of liquid pickup by the filamentary material by counting the pump impulses upon each activation thereof and said counter means being operatively in communication with a continuous digital tape readout for liquid pickup surveillance.

3,707,860

DEVICE FOR LOCKING ARTICLES TO A MOUNTING BASE

M. Leonard Singer, 1500 Cardinal Drive, Little Falls, N.J., and Robert M. Woletz, 294 Buttonwood Drive, Paramus, N.J.

Filed July 7, 1971, Ser. No. 160,314
Int. Cl. E05b 69/00
U.S. Cl. 70—58 4 Claims



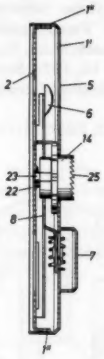
A device particularly for locking a calculator to a mounting base comprises a U-shape stirrup which is secured to the bottom of the device such as by epoxy glue and which includes a reinforcing rod therethrough so that it cannot be easily severed. The complete locking device includes a bar member having a hook shaped end which engages over the stirrup in an unreleasable manner and a securement end which extends beyond the end of the device being secured so that it cannot be pivoted out of this stirrup. The securement end is secured by a securing screw which extends through a locking device comprising a first member which engages through the securing plate to the mounting base and a threaded screw which extends through the first member and engages into the mounting base and has a head portion which is covered within the first member. A second member is telescoped in respect to the first member and it includes a locking cylinder which is key operated to engage a latch into a receiving groove of the first member to lock the two members together and prevent access to the screw head.

3,707,861

PERMUTATION LOCK, FOR EXAMPLE, FOR SUITCASES, BRIEFCASES OR THE LIKE

Gustav Lindner, Iserlohn, Germany, assignor to Firma Heinrich Hulter Jr., Iserlohn, Germany

Filed Jan. 8, 1971, Ser. No. 104,983
Claims priority, application Germany, Jan. 9, 1970, P 20 00 769.6
Int. Cl. E05b 37/12, 65/50
U.S. Cl. 70—74 7 Claims



A permutation lock for suitcases, briefcases or the like, which comprises a housing having a cover and a bottom. Permutation discs and locking discs are provided, which permutation discs are capable of being locked with the locking discs for variation of the opening permutating in different angular positions. The locking discs have a first opening. A displaceable bolt slide includes locking projections and are cooperative with a hasp. The locking tongues enter the first opening and the cover has a second opening. The permutation discs include an upper part and a lower annular collar. The permutation discs project through the second opening with their upper part and support themselves with their lower annular collar on the inner face of the cover and have a central third opening, receiving a shaft of the locking disc resiliently against the bottom. Recesses are disposed on the under side of the lower annular collar concentrically about the third central opening, and projections are provided on the end face of the locking discs, which projections enter the recesses.

3,707,862

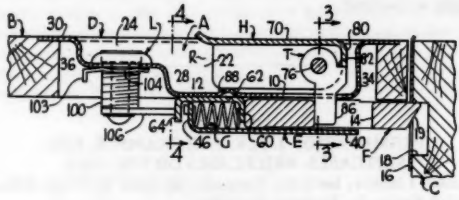
KEY-CONTROLLED DOOR LOCK

John V. Pastva, Jr., Parma Heights, Ohio, assignor to The Eastman Company, Cleveland, Ohio

Filed Feb. 19, 1971, Ser. No. 116,969
Int. Cl. E05b 5/00
U.S. Cl. 70—150 2 Claims

A paddle-type, key-controlled flush-mounted, spring-biased bolt lock for swinging doors made primarily of metal stampings and having the key control in the shallower part of a

two level recess and the handle in the deeper part of the recess with the non-pivoted end of the handle adjacent to the key



control. The key control includes a cam selectively movable into and out of the path of a member engageable with the bolt.

3,707,863

CYLINDER LOCK

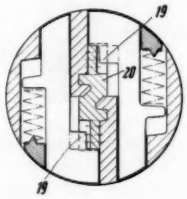
Dittmar Schwab, and Heinz Schwab, both of Hausen, Germany, assignors to Ymos-Metallwerke Wolf & Becker GmbH & Co., Offenbach/Main, Germany

Filed Nov. 10, 1970, Ser. No. 88,374

Claims priority, application Germany, Nov. 17, 1969, P 19 57 642.2

Int. Cl. E05b *15/14, 29/00*

U.S. Cl. 70—364 R **7 Claims**



A cylinder lock has tumblers mounted in two rows, the tumblers being arranged symmetrically in pairs, each pair having one tumbler from each row in a plane, and the tumblers in each pair being mutually offset and displaceable parallel to one another in opposite directions against biassing springs when a key is inserted, whereby protruding parts of the tumblers are withdrawn from recesses in the outer cylinder of the lock to allow the barrel to be turned. The key may be reversible, i.e. the profile on one edge may be a mirror image of that of the other edge about the longitudinal center line of the key. To shorten the length of the lock for a given number of tumblers the rows are staggered longitudinally of the lock. Each tumbler may have two key engaging edges, stepped relative to the diametral direction to engage correspondingly stepped key profiles. The invention increases the number of tumblers, and hence the number of alternative key profiles, in a given length of lock compared with conventional locks.

3,707,864

PRESSURE VESSELS

Albert Edward Pigott, Clifton; Brian Tomkins, Bolton, both of England, and Lionel Edward Raraty, deceased, late of Lythan St. Annes, England, by Hermanna Raraty, administratrix, assignors to United Kingdom Atomic Energy Authority, London, England

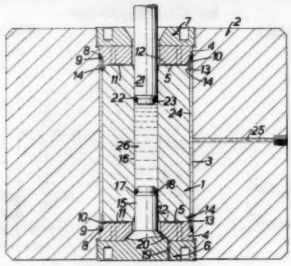
Filed March 9, 1970, Ser. No. 17,628

Claims priority, application Great Britain, March 17, 1969, 13,991/69

Int. Cl. B21d *27/00*

U.S. Cl. 72—60 **6 Claims**

A pressure vessel of double ring construction comprising inner and outer concentric vessels with an annular interspace between the two vessels. Liquid is pressurized in the interspace to support the inner vessel. The inner vessel is supported without constraint from the outer vessel and the ends of the interspace are closed by joints which allow freedom of radial ex-



pansion of the ends of the inner vessel without giving rise to stressing of the adjacent ends of the outer vessel. In a particular arrangement the ends of the interspace are closed by sealed joints which make sliding contact with the end faces of the inner vessel.

3,707,865

METHOD FOR RESTORING THE INITIAL WORK-HARDENED CONDITION IN A CONDUCTOR PORTION ANNEALED BY WELDING AND APPARATUS FOR CARRYING OUT SAID METHOD

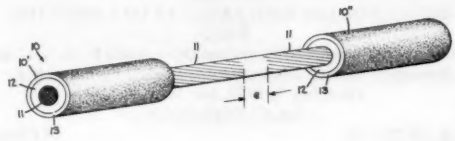
Agostino Oriani, Sesto San Giovanni, Italy, assignor to Industrie Pirelli S.p.A., Milan, Italy

Filed Oct. 20, 1970, Ser. No. 82,439

Claims priority, application Italy, Feb. 3, 1970, 20134 A/70

Int. Cl. B21f *15/08*

U.S. Cl. 72—340 **11 Claims**



The annealed region of electrical cable conductors which have been butt welded together are restored to their initial work-hardened condition by clamping them on opposite sides of the annealed region and applying forces in either or both the axial and transverse directions to the cables via the clamps so as to swage and work-harden the annealed region. The clamps include means for applying hammer-type forces, including inclined planes for obtaining axially directed forces; and they further include screw thread means for applying gradual swaging forces, as well as screw thread and pneumatic piston means for applying clamping forces.

3,707,866

MACHINES FOR FORMING A WORKPIECE BETWEEN TWO RAM HEADS

Willi Brauer, Coburg, Germany, assignor to Langenstein & Schemann Aktiengesellschaft, Coburg, Germany

Continuation of Ser. No. 764,901, Oct. 3, 1968, abandoned. This application Feb. 24, 1971, Ser. No. 118,528

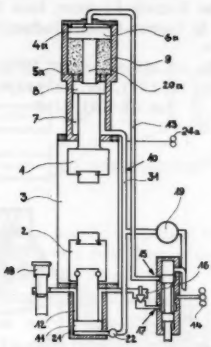
Claims priority, application Austria, Oct. 9, 1967, 9134

Int. Cl. B21j *7/34*

U.S. Cl. 72—407 **7 Claims**

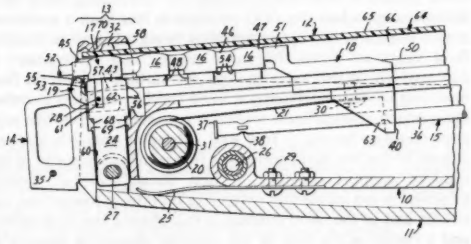
Improved hydraulic forming and forging presses for combined operation, in which there are valving facilities and

piston and cylinder arrangements enabling various combinations of relative movement and rates of movement of the rams



to be adjusted, in accordance with the kind of metal-forming operations which are to be effected.

3,707,867
CARTRIDGE-TYPE CRIMPING TOOL
Arne H. Mayala, Stillwater, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Filed March 12, 1970, Ser. No. 18,929
Int. Cl. B21d *9/08*
U.S. Cl. 72—410 **8 Claims**



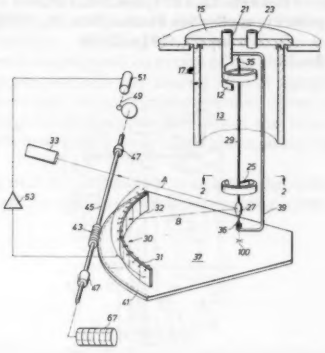
A hand tool which rigidly holds a connector in position to accept a plurality of wires to be joined, assures permanent electrical connection by retaining the connector until a proper crimp has been made, forces the properly crimped connector from the tool, and automatically presents a new connector in the proper position from a supply cartridge. The connectors are of the type having a wire receiving base portion and a telescoping cover portion movable into the base portion.

ERRATUM

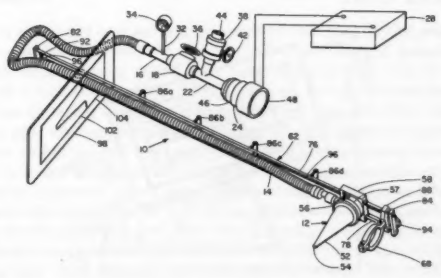
For Class 72—379 see:
Patent No. 3,708,060

3,707,868
PRECISION PRESSURE MANOMETER
Jerry L. Fruit, Houston, Tex., assignor to Mensor Corporation, Houston, Tex.
Filed April 16, 1971, Ser. No. 134,607
Int. Cl. G01r *27/00*
U.S. Cl. 73—4 **9 Claims**

A design Bourdon tube manometer, wherein tube deflection is detected by sensing the arc subtended by a light beam reflected from a mirror on the Bourdon tube, has a fixed light source and a null reading reflected beam detector. The Bourdon tube itself is mounted on a mounting member which is selectively movable with respect to a frame member on which is mounted the null reading detector. This permits linearizing the response of the instrument. Initially, the range of the instrument is adjusted by moving the mirror parallel to the source light beam to produce a read-out corresponding to the upper limit of the pressure range desired to be measured. Then the mirror is moved perpendicular to the source light beam to produce a linear response at a point at approximately the mid-point of such range.



3,707,869
AIRBORNE ISOKINETIC SAMPLER
Gilbert S. Raynor, Manorville, N.Y., assignor to The United States of America as represented by the United States Atomic Energy Commission
Filed June 9, 1971, Ser. No. 151,402
Int. Cl. G01n *1/24*; B01d *46/00*
U.S. Cl. 73—28 **3 Claims**



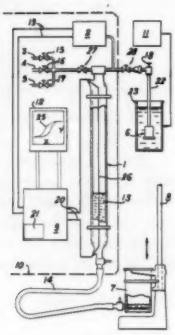
A lightweight airborne isokinetic sampler employing a sampling head mounted on a track and connected by flexible hose to the air-moving and controlling equipment located within the aircraft. Flow of air is controlled by a coaxial valve and a bleed-in valve. A pitot tube is used to measure air flow.

3,707,870

APPARATUS FOR AUTOMATIC AND CONTINUOUS PLOTTING OF ABSORPTION-DESORPTION ISOTHERMS EMPLOYED FOR DETERMINING THE MICROSTRUCTURE OF POROUS BODIES

Michel Herve, Bures sur Yvette, and Bernard Rasneur, Chevreuse, both of France, assignors to Commissariat A L'Energie Atomique, Paris, France

Filed Feb. 22, 1971, Ser. No. 117,462
Claims priority, application France, Feb. 26, 1970, 7006933
Int. Cl. G01n *15/08*
U.S. Cl. 73—38 7 Claims



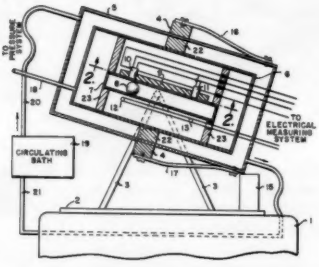
The apparatus essentially comprises a variable-volume enclosure, a pressure transducer in communication with said enclosure, a vacuum line, at least one pipe for the admission of adsorbable gases or vapors, a pipe for the admission of non-adsorbable gases and a sample-holder. Said pipes and said sample-holder are also in communication with said enclosure but can be cut-off by means of cocks. An analog computer is connected electrically to the transducer and to the enclosure and a cartesian-coordinate plotter is connected to the computer to provide absorption-desorption isotherms. The enclosure, the transducer, the analog computer and the sample-holder are maintained at constant temperature.

3,707,871

SENSOR FOR A VARIABLE-PRESSURE ROLLING BALL VISCOMETER

Robert T. Emmet, Glen Burnie, Md., assignor to The United States of America as represented by the Secretary of the Navy

Filed Dec. 14, 1970, Ser. No. 97,561
Int. Cl. G01n *11/12*
U.S. Cl. 73—57 8 Claims



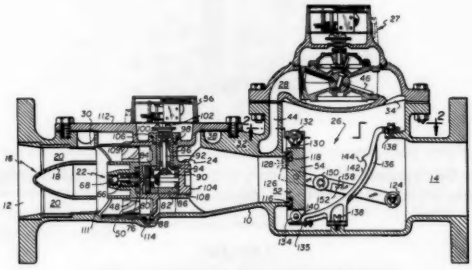
The present invention relates to a variable-pressure rolling ball viscometer which is essentially invarient to pressure, and has improved mechanical stability. The pressure insensitivity of the new viscometer is obtained by including in the manufacturing of the sensor circuits a step wherein the thermosetting resin used is cured under high pressure.

3,707,872

COMPOUND FLUID METER

Narinder Masson, Jersey City; William John Korenicki, Linden, and Walter Ludwig Lechner, New Providence, all of N.J., assignors to Gamon-Calmet Industries, Inc., Newark, N.J.

Division of Ser. No. 23,355, March 27, 1970. This application May 10, 1971, Ser. No. 142,035
Int. Cl. G01f *1/10*
U.S. Cl. 73—231 R 10 Claims



A compound fluid meter including a turbine type high flow metering device disposed in a main metering conduit, a low flow positive displacement metering device disposed in a bypass conduit connected to the main conduit, changeover valve means in said main conduit for preventing fluid flow therethrough when the fluid pressure is less than a predetermined pressure, the bypass conduit being adapted to receive fluid upstream from the valve means and reintroduce it downstream of the valve means, the turbine type high flow metering device comprising a fixed rod-like support member upon which an impeller is rotatably mounted, the rod-like support member having a free end extending towards the upstream end of the main conduit, a recess in said free end of the rod-like support member, a first thrust member loosely disposed in the recess and extending therefrom toward the upstream end of the main conduit, a ball-shaped thrust member, and a recess in the hub of the impeller shaped to receive at least the free end of the rod-like support member with the first thrust member extending therefrom and the ball-shaped thrust member disposed between the upstream end of the hub recess and the first thrust member. Holes may be provided in the impeller for introducing the fluid being metered into the hub recess to lubricate and cool the relatively rotating elements therein. Further, face polarized annular permanent magnets are provided for coupling the impeller to an intermediate gear train and the intermediate gear train to the gearing of a register box to permit the intermediate gear train to be disposed in a fluid tight casing. Still further, the changeover valve means may comprise a toggle link mounted valve member having a cam follower adapted to cooperate with a cam for guiding the valve member through its opening and closing movements.

3,707,873

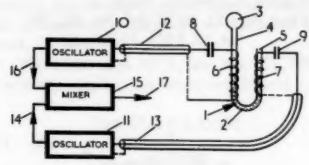
TEMPERATURE MEASURMENT

Robert Eric Young, 12 Whitnash Rd., Leamington Spa, England

Filed Oct. 2, 1970, Ser. No. 77,688
Claims priority, application Great Britain, Oct. 3, 1969, 48,632/69
Int. Cl. G01k *5/18, 5/30*
U.S. Cl. 73—362 R 1 Claim

A device for measuring temperature in which an inductance coil surrounds each arm of a glass manometer containing a

liquid such as mercury acted on by a temperature expansive liquid such as ethyl alcohol. Each inductance coil forms part



of an oscillatory circuit and the outputs of the two oscillatory circuits are compared in a beat frequency mixer to give a digital representation of the temperature.

3,707,874

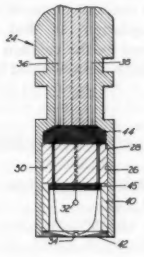
SOLID STATE POSITION SENSING APPARATUS

Wainwright Tuttle, Cincinnati, Ohio, assignor to Spati Industries, Inc., Covington, Ky.

Filed March 24, 1971, Ser. No. 127,515

Int. Cl. G01l 9/02

U.S. Cl. 73—398 R **7 Claims**



Device including a temperature sensitive, self-heated impedance means and a spaced apart solid means. Any condition between the impedance means and the solid object which affects the heat transfer therebetween may be sensed by measuring the electrical resistance of the impedance means.

3,707,875

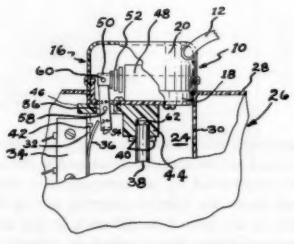
TIMING DEVICE FOR AUTOMATIC SAMPLING APPARATUS

Gary Michael Freeman, Elyria, Ohio, assignor to Gilford Instrument Laboratories Inc., Oberlin, Ohio

Filed April 1, 1971, Ser. No. 130,211

Int. Cl. G01n 1/14; H01h 47/18

U.S. Cl. 73—423 A **12 Claims**



The mechanical timing cam of an automatic sampling device is replaced by a solenoid actuated lever controlled by an electronic pulsing circuit. The lever is adapted to be moved against the actuating arm of a switch to move the arm from a first position to a second position. When the solenoid is not energized or energized with reverse polarity, the switch arm returns from its second position to its first position under the bias of a spring. In one of these positions the switch closes a circuit to a motor which in turn controls the length of time that a dip tube is in a receptacle of wash liquid. In the other position the switch closes a circuit to the motor which in turn controls the length of time that a dip tube is in a sample receptacle. Accordingly, adjusting the times that the solenoid is energized and de-energized by means of the electronic pulsing circuit, one can establish any desired ratio of sample to wash liquid or vice versa. Adjusting the cycle time of the energizing and de-energizing pulses, one can adjust the rate at which samples with intervening wash liquid are aspirated by the dip tube.

A timing circuit is adjustable to achieve the desired ratios and cycle time, putting out solenoid energizing pulses.

3,707,876

TIME SWITCHING APPARATUS WITH CONTROLLABLE STEP-BY-STEP TIME DURATIONS

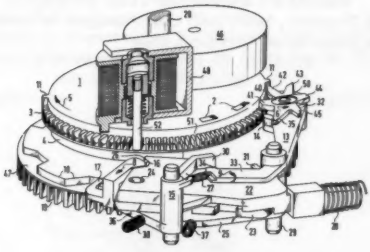
Walter K. Holzer, Meersburg, Germany, assignor to Holzer Patent AG, Zug, Switzerland

Filed Feb. 16, 1971, Ser. No. 115,337

Claims priority, application Switzerland, Feb. 16, 1970, 2172/70

Int. Cl. G05g 21/00

U.S. Cl. 74—3.52 **8 Claims**

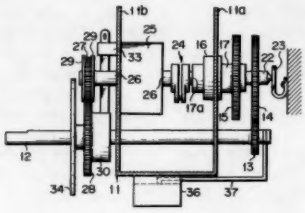


A tensioned cam surface operates a conveying device and is mounted concentrically with respect to a cammed program disk which carries timing gear teeth scanned by a time lever with which the conveying device can be locked or unlocked. Time metering apparatus is operated by at least one of the timing gear teeth on the continuously revolving cammed program disk and at the end operating position of the conveying device is reversed in direction. The time metering apparatus comprises a counter wheel rotatably mounted on a counter wheel lever and supported in a counting position by a front surface of the cammed program disk. The release of a cocking lever is simultaneous with a time when one of a number of special timing gear teeth engages with the counter wheel. The cocking lever is actuated by a time metering lever in the time metering apparatus and a locking latch locks the cocking lever in response to a timing cam mounted on the cammed program disk. The tension cam surface is shaped so that the unlocking of the cocking lever by the time metering lever is delayed and that delayed release is variable for any desired length of time either by a magnetically operated locking device or by a variation of the RPM of the main drive of the cammed program disk.

3,707,877
ALL-CHANNEL TUNER

Motoya Kondo, Yokohama, Japan, assignor to Tokyo Shibaura Electric Co., Kawasaki-shi, Japan

Filed July 30, 1971, Ser. No. 167,575
Int. Cl. F16h *35/18*
U.S. Cl. 74—10.52 7 Claims

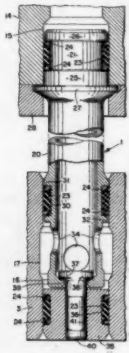


An all-channel tuner using varactors in the tuner circuit comprises a selector shaft which is disposed axially movably and rotatably, and which has the first gear at the rear end; the second and third gears which selectively mesh with the first gear upon axial movements of said shaft; a planetary motion mechanism section which couples both the gears at predetermined reduction gear ratios by the planetary motion; and a variable resistor which is coupled to the planetary mechanism, and which adjusts an applied voltage to the varactors. The tuner circuit is tuned by the change in the applied voltage of the varactors.

3,707,878
PRESSURE BALANCED TUBE ASSEMBLY

Ernest Treichler, Santa Ana, Calif., assignor to Parker-Hannifin Corporation, Cleveland, Ohio

Filed Dec. 21, 1970, Ser. No. 99,734
Int. Cl. F01b *31/00*
U.S. Cl. 92—164 15 Claims

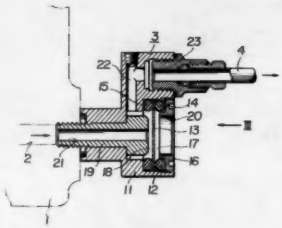


A pressure balanced tube assembly characterized in that the tube thereof has end portions in telescoped sealed relation with spaced apart coupling members, the assembly being such that fluid pressure therein does not impose an axial separating force on the coupling members. The tube assembly is further characterized in that the tube end portions remain sealed in the coupling members despite departure of the spaced location of the coupling members, due to tolerance variations, from predetermined relation with respect to each other both axially and laterally.

3,707,879
FLUID PRESSURE PULSATION ABSORBERS

Kazuyoshi Fukatsu, Kariya, Japan, assignor to Toyoda Kaki Kabushiki Kaisha, Kariya-shi, Japan

Filed June 22, 1970, Ser. No. 48,338
Int. Cl. F01b *19/00*
U.S. Cl. 92—48 6 Claims

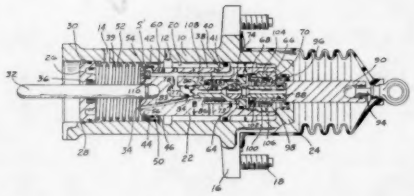


In a fluid pressure pulsation absorber, a disc spring shaped diaphragm is disposed in a casing to receive pressurized fluid on one side and the pheriphery of the diaphragm is clamped between annular resilient members. The annular resilient members are made of a resilient material having smaller spring constant than the diaphragm so that pulsations of lower frequencies are absorbed by the resilent members and pulsations of higher frequencies are absorbed by the diaphragm.

3,707,880
HYDRAULIC BRAKE BOOSTER WITH PISTON RETURN DEVICE

Lloyd G. Bach, South Bend, Ind., assignor to The Bendix Corporation, South Bend, Ind.

Filed Dec. 18, 1970, Ser. No. 99,413
Int. Cl. F15b *13/10, 13/16*
U.S. Cl. 91—391 10 Claims



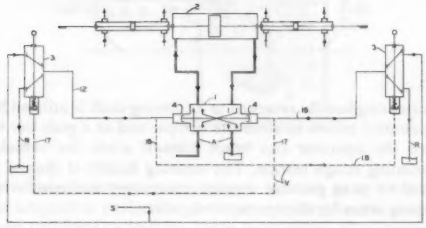
A brake applying mechanism having a chamber with inlet and outlet ports, a piston slidably arranged in the chamber and a valve to be controlled by an operator for admitting fluid under pressure from the inlet to thereby act on the piston in such a manner as to cause it to advance in the chamber. The piston is returned from the position to which it advanced under fluid pressure by a return mechanism normally opposing advance of the piston. Upon failure of inlet fluid pressure the piston can be advanced manually by the operator unopposed by the return mechanism which is now rendered ineffective.

3,707,881

CONTROL SYSTEM FOR HYDRAULIC FLUID-FEED MECHANISM

Heinz Neuhaus, Am Hoing 21, and Henning Peters, Am Kamp 24, both of Germany, assignors to Friedrich Uhde GmbH, Dortmund, Germany

Filed March 8, 1971, Ser. No. 121,713
Claims priority, application Germany, March 12, 1970, P 20 11 570.2
Int. Cl. F01l *25/06*
U.S. Cl. 91—306 **3 Claims**



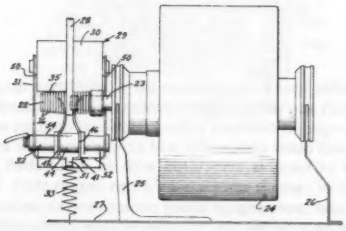
In a control for a hydraulic cylinder, incorporating a hydraulically actuated reversing valve, the reversing time at each end of the stroke is minimized by the use of pilot valves each of which is spring urged to its retracted position and is hydraulically urged to its extended position by hydraulic pressure applied to its piston and to the reversing valve by way of the other pilot valve. In operation, the retracting motion of a first pilot valve is initiated mechanically and completed by spring force as a second pilot valve releases the extending pressure as it is moved to extended position by hydraulic fluid flowing through the first pilot valve.

3,707,882

BELT SHIFTER WITH CURVED FINGERS FOR MULTIPLE SPEED DRYER

Alvin E. Burkall, St. Joseph, Mich., assignor to Whirlpool Corporation, Benton Harbor, Mich.

Filed June 24, 1971, Ser. No. 156,244
Int. Cl. F16h *7/08*; D06f *21/00, 23/00*
U.S. Cl. 74—242.3 **9 Claims**



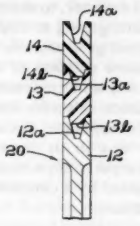
A belt shifter for shifting a drive belt on a drive pulley of a belt driving system for a clothes dryer in which the drive pulley has a tapered surface to provide a gradual increase in diameter which surface is provided with circular grooves which engage and receive circumferential grooves formed in a surface of the drive belt.

3,707,883

POWER TRANSMISSION PULLEY AND MEANS FOR CHANGING THE DIAMETER OF SAME

Rudolph J. Kamenick, Terre Haute, Ind., assignor to The B. F. Goodrich Company, New York, N.Y.

Filed Oct. 2, 1971, Ser. No. 187,328
Int. Cl. F16h *55/52*
U.S. Cl. 74—230.16 **13 Claims**



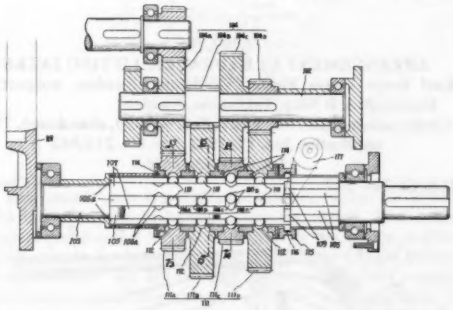
A power transmission pulley having a metal hub and grooved rim for receiving a belt with a plurality of adaptor rings of plastic material for incrementally changing the diameter of the pulley. Each ring has a circumferential rib on the inner periphery and a belt groove on the outer periphery. The adaptors are nested concentrically over the rim of the pulley. Each adaptor ring is axially assembled by circumferential stretching over the rim or previously assembled adaptor ring with the rib received in the belt groove.

3,707,884

METHOD AND DEVICE FOR POWER TRANSMISSION TRANSFER

Junichi Go, 18 Nakasu-machi, Gifu, Japan

Continuation-in-part of Ser. No. 859,665, Sept. 22, 1969, abandoned. This application Nov. 20, 1970, Ser. No. 91,558
Int. Cl. F16h *3/10*; F16d *41/07*
U.S. Cl. 74—372 **17 Claims**



A change speed device for power transmission, including, in one form, parallel input drive and output driven shafts, each having preferably a plurality of axially spaced, different diameter interengageable members preferably in the form of gears and forming part of the drive train, and for providing various drive speeds thereof. The input or drive gears are fixed to rotate with the input shaft at all times when it rotates, while the driven gears are mounted for idle rotation on the output shaft, responsive to intermeshed drive by the drive gears, and the driven gears are only selected normally one at a time to be interconnected or frictionally coupled to the output shaft to impart output rotation to the driven output shaft from the input drive shaft. A novel shifter device utilizing circum-

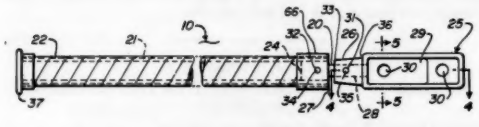
ferentially spaced, axially directed, laterally notched, slide members to control roller or ball members which are carried in transverse grooves on the output shaft and interposed between the shaft and driven gears thereon, is embodied therewith to selectively align preselected notch portions of the laterally notched slide members with a predetermined one or set of the transverse grooves, to permit the rollers to move into said lateral notches where there the radial distance between the I.D. of the selected driven gear and the depth of the groove is lessened or less than the diameter or effective radial dimension of the roller or ball member, to thereby form a servo-type camming frictional interengaging or coupling action between the selected change-speed gear and the output shaft, responsive to continuing relative rotation of the drive and driven gears. When the notches and transverse grooves are nonaligned, a neutral condition exists for the power transmission. The shifter comprises separate circumferentially spaced notched slides which seat in or between complementally formed splines on the output shaft, which slides are collectively attached to and actuated by a common actuator collar and suitable linkage mechanism.

3,707,885

HOIST HANDLE

Anthony G. Profet, Charlotte, N.C., assignor to Duff-Norton Company, Inc., Charlotte, N.C.

Filed Oct. 12, 1971, Ser. No. 188,109
Int. Cl. G05g 1/04
U.S. Cl. 74—524 **15 Claims**



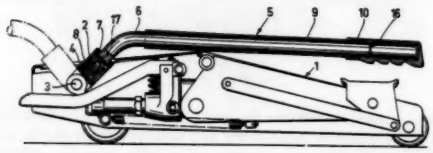
A bending element and hoist handle, the latter preferably having a hollow tubular plastic lever portion. A bending element body fitted within one end of the lever. The diameter at a connecting portion designed to a given overload. An adapter fits to the bending element and is fitted to the hoist. The result is a hoist handle in which the bending element will fail before the hoist is overloaded by the operator.

3,707,886

ARRANGEMENT AT HYDRAULIC LIFTING JACKS

Karl Borje Yngve Flodin, Eskilstuna, Sweden, assignor to Domkraft A B Nike, Eskilstuna, Sweden

Continuation of Ser. No. 9,921, Feb. 9, 1970, abandoned. This application Jan. 17, 1972, Ser. No. 218,562
Int. Cl. G05g 1/04
U.S. Cl. 74—547 **5 Claims**



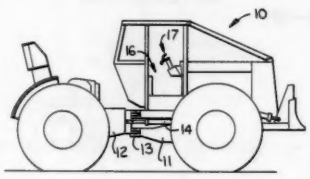
A manually operable hydraulic jack having a horizontally extending jack body including a pump which is disposed near one end of the jack, a manually operable pumping lever for actuating said pump, said lever being adjustable in length, one end of said lever being connected to said pump by being mounted on an arm which is pivotable about a horizontal axis, said lever being adapted to permit movement between an operating position and an out-of-the-way position, so that in an out-of-the-way position, said second end of said lever extends substantially parallel to said jack body.

3,707,887

STEERING CONTROL MEANS AND GRAB BAR COMBINATION

Ralph R. Day, Aurora, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed June 14, 1971, Ser. No. 152,514
Int. Cl. B62d 1/04
U.S. Cl. 74—552 **8 Claims**



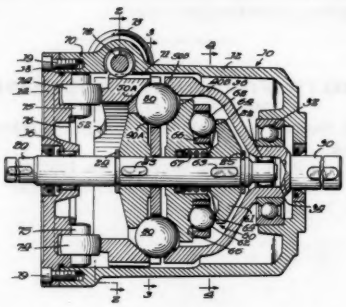
A steering handle attached to a steering shaft is utilized both as a control means to steer the vehicle and as a grab bar with which the operator can brace himself when the vehicle is negotiating rough terrain. The steering handle is shaped and placed so as to provide several convenient and comfortable grasping areas for the operator's hands.

3,707,888

VARIABLE SPEED TRANSMISSION

Henry Schottler, North Riverside, Ill., assignor to Roller Gear Ltd., Zug, Zug, Switzerland

Filed July 31, 1970, Ser. No. 60,073
Int. Cl. F16h 15/50, 13/14
U.S. Cl. 74—796 **4 Claims**



A variable speed transmission for transmitting torque to an output shaft at a substantially constant selected speed. Driving balls arranged in constant rolling frictional contact with pairs of inner and outer concentric and axially separable ball races. One pair of races is associated with an input shaft, and the other pair of races is associated with an output shaft. The driving balls and races engage along contact tracks defined on the races and balls to thereby transmit torque between the shafts at a speed ratio determined by the contact tracks. Control means adjusts the axial positioning of one pair of races within a selected range to infinitely vary the contact tracks and thereby vary the speed ratio. Pressure regulator means responds to differential twist torque between the shafts to maintain the balls and races in frictional rolling contact throughout said selected range of adjustment and vary the contact pressure between races and balls in proportion to the output torque.

3,707,889
POWER CONTROL APPARATUS

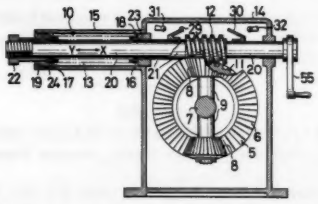
Susumu Kitajima, Higashi-Osaka, Japan, assignor to Kurita Machinery Manufacturing Company Limited, Osaka, Japan

Filed March 18, 1971, Ser. No. 125,638

Claims priority, application Japan, March 27, 1970, 45/26084; March 27, 1970, 45/26086; April 4, 1970, 45/29153

Int. Cl. F16h *5/66*

U.S. Cl. 74—845 **10 Claims**



A control element comprising a suitable gear mechanism and adapted to perform a power transmitting function under a given overload or braking force is provided as a constituent element of the power transmitting system between an input shaft and an output shaft. When the output shaft is subjected to a load exceeding the braking force, the control element so functions as to permit a relative rotation between the input shaft and the output shaft against the braking force. This operation of the control element further actuates a control switch for drive means and automatically controls the drive means. Due to the automatic control thus effected, the drive means is brought to a halt and the direction of rotation of the same is switched from the normal to the reverse and vice versa.

3,707,890
HYDRAULIC CONTROL SYSTEM FOR TRANSMISSIONS

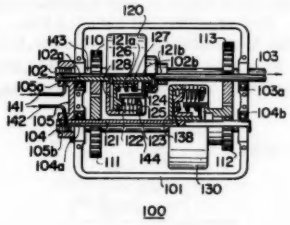
Shin Ito, Toyota, Japan, assignor to Toyota Jidosha Kogyo kabushiki Kaisha, Toyota-shi, Japan

Filed Feb. 10, 1971, Ser. No. 114,142

Claims priority, application Japan, Feb. 12, 1970, 45/11480

Int. Cl. B60k *21/00*

U.S. Cl. 74—868 **6 Claims**



A hydraulic control system, for transmissions in which the high speed range is obtained by supplying oil under pressure into a first hydraulic servo while discharging the oil from a second hydraulic servo, and the low speed range is obtained by supplying oil under pressure to the second hydraulic servo while discharging oil from the first hydraulic servo, includes a source of hydraulic fluid under pressure, a pressure regulator valve, a governor valve, a throttle valve, a shift valve an orifice, an orifice control valve and an accumulator. The shift valve is connected to the source of regulated pressure and to exhaust, and directly controls supply and exhaust fluid relative to the first servo. The shift valve is connected through a passage having a flow restricting orifice therein to the second servo, and is also connected to the orifice control valve, which latter is in communication with the second servo. The orifice control valve has a first position blocking direct communication between the shift valve and the second servo and a second position by-passing the flow restricting orifice and establishing direct communication between the shift valve and the second servo. The orifice control valve is subjected to the throttle pressure and the pressure in the first hydraulic servo, acting in opposition. When shifting from low speed to high speed, the orifice control valve has its second position so that the pressure in the second servo is slowly decreased while the pressure in the first servo is rapidly increased. The increased pressure in the first servo moves the orifice control valve to its second position so that pressure is rapidly exhausted from the second servo after the pressure in the first servo has attained a predetermined value. In shifting from high speed to low speed, oil is rapidly discharged from the first servo to rapidly decrease the pressure therein, with the orifice control valve initially occupying its second position so that the pressure in the second servo is rapidly increased. As the pressure in the first servo decreases, the orifice control valve is moved, by the throttle pressure, back to its first position to decrease the rate of increase of the pressure in the second servo.

3,707,891
HYDRAULIC CONTROL SYSTEM FOR TRANSMISSION OF VEHICLE

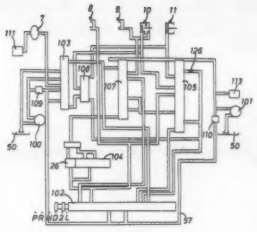
Tadao Asano, and Noboru Murakami, both of Kariya-shi, Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya-shi, Aichi-ken, Japan

Filed Feb. 16, 1971, Ser. No. 115,301

Claims priority, application Japan, Feb. 16, 1970, 45/13326

Int. Cl. B60k *21/02, 29/00*

U.S. Cl. 74—869 **6 Claims**



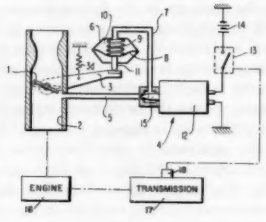
Disclosed herein is a hydraulic control system for a transmission of a vehicle having a driving engine. The control system comprises a drive shaft driven by the engine, a driven shaft, means for providing multi-ratio power trains between the drive shaft and driven shaft and having friction engaging device for completing the power trains when engaged, the device including servo-means for engagement thereof, a source of fluid pressure, a line pressure conduit for connecting the pressure source to the servo-means, pressure regulating means for controlling line pressure within the conduit to and from a high value and a low value, manual selector means for selectively connecting the line pressure to the servo-means, flow regulating means for regulating fluid pressure supplied into the servo-means, sensing means for controlling operation of the pressure regulating means in response to a fluid pressure into the servo-means through the flow regulating means and the line pressure, for thereby eliminating possible and positive shocks in shifting down the power trains through the transmission.

3,707,892

TRANSMISSION CONTROLLED THROTTLE FOR INTERNAL COMBUSTION ENGINE

Takashi Kuroda, and Yasuo Tatsutomi, both of Hiroshima, Japan, assignors to Toyo Kogyo Co., Ltd., Hiroshima, Japan

Filed Aug. 11, 1970, Ser. No. 63,197
Claims priority, application Japan, Aug. 11, 1969, 44/76467
Int. Cl. B60k *21/00*
U.S. Cl. 74—873 **2 Claims**



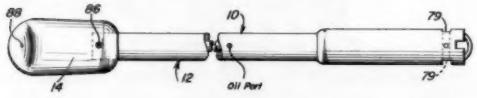
A fuel supply system for an internal combustion engine utilizing an automatic transmission including a torque converter and a gear train has a carburetor with an inlet passage and a throttle valve therein. A sensing member is in a first position when the gear train is in a neutral position and a second position when the gear train is in a drive position. A throttle valve control slightly opens or closes the throttle valve in response to the sensing member. The throttle valve control operates to slightly open the throttle valve to hold the idling speed of the engine to a predetermined value when the gear train is in the drive position, thereby preventing the engine speed from decreasing due to the load.

3,707,893

MECHANICAL SPEED RATCHET

Bernard L. Hofman, Bonanza Trailer Court, Leommon Valley, Nev.

Filed Oct. 20, 1970, Ser. No. 82,410
Int. Cl. B25b *13/00, 17/00*
U.S. Cl. 81—58.1 **6 Claims**



An elongated lever bar having a head on one end mounted for rotation about a first axis transverse to the centerline of the bar and a handle sleeve rotatably mounted on the other end of the bar for rotation relative thereto about the center axis of the bar. The deactivatable driving structure is provided and drivingly couples the handle sleeve to the head and the head and corresponding bar end include coacting reversible ratchet structure for allowing rotation of the head in either direction and preventing rotation of the head in the other direction relative to the bar.

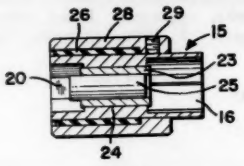
3,707,894

MAGNETIC FASTENER DRIVING TOOL

George B. Stillwagon, Jr., Dayton, Ohio, assignor to Gardner-Denver Company, Dayton, Ohio

Filed Feb. 10, 1971, Ser. No. 114,136
Int. Cl. B25b *13/06, 23/12*
U.S. Cl. 81—125 **8 Claims**

A magnetically attractable threaded fastener is retained in driving engagement with a driving tool by a first permanent magnet, and a magnetically attractable washer is retained on the fastener adjacent the head of the fastener by a second permanent magnet which surrounds both the driving tool and the first permanent magnet. The driving tool may be in the form of



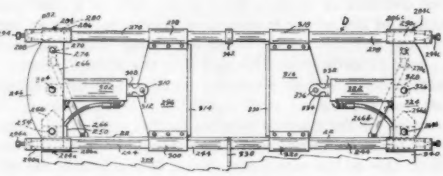
a bit for receiving a fastener having a recessed head or may be in the form of a socket for receiving a fastener having a polygonal shaped head.

3,707,895

DEVICE FOR SHEARING A FELLED TREE

Charles E. McElderry, 9206 Grand Avenue Place, Duluth, Minn.

Division of Ser. No. 781,148, Dec. 4, 1968, Pat. No. 3,572,410.
This application Dec. 28, 1970, Ser. No. 101,584
Int. Cl. B26d *5/12*
U.S. Cl. 83—623 **2 Claims**



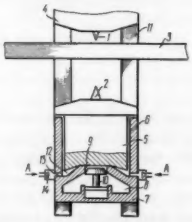
A support means, a tree delimber unit having articulated arcuate limb cutting blades for placement about a felled tree, a pair of tree cutting blades in alignment with the articulated blades together with gripping rollers positioned on the support means intermediate of and in alignment with the articulated limb cutting blades and the tree cutting blades for gripping and moving a felled tree through said limb cutting blades and to the tree cutting blades.

3,707,896

MACHINE FOR WORKING METALS BY IMPULSES

Vadim Grigorievich Kononenko; Vasilievich Yatsenko Igor Pavlovich Komnatny; Serafim Vasilievich Schekochikhin; Viktor Alexeevich Stelmakh; Stanislav Anismovich Mazichenko, all of Kharkov, and Valentin Semenovich Kudryavtsev, Krasnoyarsk, all of U.S.S.R., assignors to Kharkovsky Aviatsionny Institut, Kharkov, U.S.S.R.

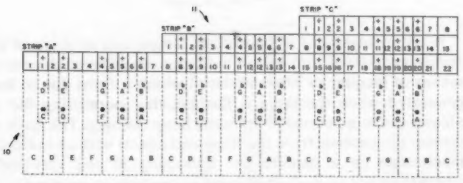
Filed May 19, 1971, Ser. No. 144,911
Claims priority, application U.S.S.R., May 26, 1970, 1442016
Int. Cl. B26d *5/12*
U.S. Cl. 83—639 **3 Claims**



A machine incorporating two tools, one of which is fastened on the plunger of an impulse chamber and the other fastened

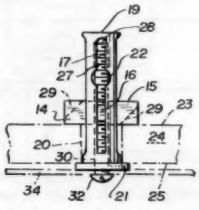
on an anvil connected through a rigid coupling with the impulse chamber forming a common power block. The impulse chamber encloses a guide sleeve to accommodate the movable plunger and a cavity to be charged with an energy carrier. The impulse chamber is fitted with side channels in communication with the space in the guide sleeve beneath the plunger to form a common closed conduit, running along the perimeter of the impulse chamber and being filled with fluid.

3,707,897
KEYBOARD TEACHING DEVICE
Sanford Hertz, Belleville, N.J., assignor to GTR Products, Inc., Kenilworth, N.J.
Filed May 14, 1971, Ser. No. 143,329
Int. Cl. G09b *15/08*
U.S. Cl. 84—479 **9 Claims**



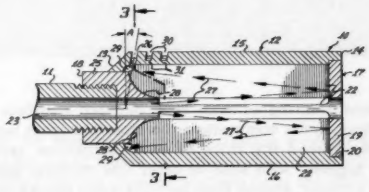
A teaching device for keyboard instruments for permitting an individual employing a numbers, alphabetical or other non-conventional musical system to freely and, at will, play keys in different octaves or registries on the keyboard. The device includes a body having a plurality of strips thereon, each strip containing markings consecutively disposed thereon for referring to the keys on the keyboard. Each strip is so arranged on the body that any one particular number common to each strip, will permit the player to play the key corresponding thereto in any desired octave or registry.

3,707,898
FASTENER
James A. Holly, Richton Park, Ill., assignor to Hollymatic Corporation
Filed Sept. 8, 1971, Ser. No. 178,646
Int. Cl. F16b *37/04*
U.S. Cl. 85—3 R **16 Claims**



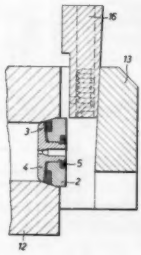
A fastener attachable to an article having a fastener receiving opening with spaced first and second areas such as inner and outer surface areas in which the fastener has a first part with a laterally movable grasping portion adapted to be arranged against the first area, a second part carrying the first part with the grasping portion retracted for insertion of the fastener into the receiving opening in which the second part has a grasping portion adapted to be arranged against the second area, means for moving the first part grasping portion laterally relative to the second part after insertion of the fastener into the opening to project the first part grasping portion laterally of the second part preparatory to subsequent engagement with the first area, and means such as a threaded screw engaging a threaded opening in the first part for moving the projecting first part and the second part relatively toward each other to press the grasping portions against the first and second areas of the article and fix the fastener in position in the fastener receiving opening.

3,707,899
FIREARM MUZZLE DEFLECTOR
Walter E. Perrine, 4428 W. Osborn, Phoenix, Ariz.
Filed July 29, 1970, Ser. No. 59,046
Int. Cl. F41c *21/18*
U.S. Cl. 89—14 C **4 Claims**



A deflector for firearms threaded to the end of a gun barrel and employing one or more discrete holes on the top of the deflector for allowing gasses escaping outward of the gun barrel to impinge on gases baffle surface and deflected by the baffle surface rearwardly where they are further deflected upwardly and forwardly out of the holes for controlling deflection of the firearm.

3,707,900
PLASTIC MUSHROOM HEAD PACKING
Josef Hornfeck, and Klausheinz Rauch, both of Dusseldorf, Germany, assignors to Rheinmetall GmbH, Dusseldorf, Germany
Filed Oct. 24, 1969, Ser. No. 869,063
Claims priority, application Germany, Nov. 8, 1968, P 18 07 778.6
Int. Cl. F41f *1/02*
U.S. Cl. 89—26 **1 Claim**



A plastic mushroom head packing for gun breechblocks movable crosswise to the core of the gun barrel, which comprises a carrier which receives the mushroom head packing. The carrier is axially displaceable on an axle disposed parallel to an axis of the barrel and is secured on a branch member of the gun barrel and swingably mounted cross-wise to the axis of the barrel.

ERRATA

For Classes 91—391 and 91—316 see:
Patents Nos. 3,707,880 and 3,707,881

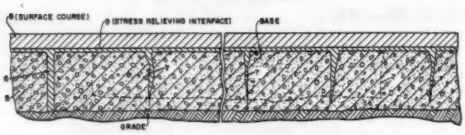
ERRATA

For Classes 92—164 and 92—48 see:
Patents Nos. 3,707,878 and 3,707,879

3,707,901
PAVEMENT AND COMPOSITION THEREFOR

Douglas Bynum, Jr., College Station, and Bob M. Gallaway, Bryan, both of Tex., assignors to U. S. Rubber Reclaiming Co., Inc., Vicksburg, Mich.

Filed Dec. 22, 1970, Ser. No. 100,661
Int. Cl. E01c 7/18
U.S. Cl. 94—9 **4 Claims**

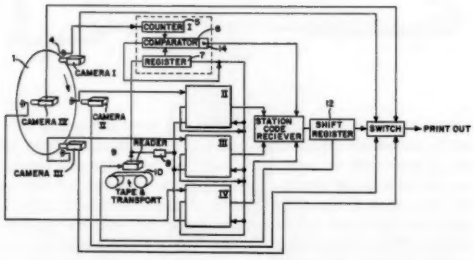


Pavement having an inner layer between a surface course and a base, and a composition therefor. The inner layer may comprise ground tire stock or other particulate vulcanized rubber together with sand or other fine material aggregate, and, as a binder, asphalt from an oil-in-water asphalt emulsion which may be about 65 percent asphalt. A typical composition may contain equal parts by volume of mineral aggregate and particulate vulcanized rubber, and asphalt emulsion in an amount of 20 to 40 percent of the total volume. The layer, which may be from about one-eighth to one-half inch in thickness, will serve to relieve strain in the surface course and to arrest cracking thereof, by virtue of its reduced elastic modulus. In addition, it will desirably fill cracks in the base, and protect the base.

3,707,902
PHOTOTYPESETTING EQUIPMENT

Haydn V. Purdy, and Ronald C. McIntosh, both c/o Harris, Purdy, McIntosh, 269 Abbeydale Rd., Wembley, Middlesex, England

Filed Aug. 10, 1970, Ser. No. 62,532
Int. Cl. B41b 13/00
U.S. Cl. 95—4.5 **5 Claims**

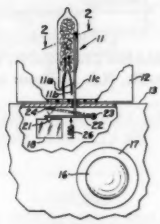


Characters on a movable character vehicle are identified by a plurality of character readers (flash lamps and TV camera tubes) spaced around the vehicle, and character signals are stored in short term storage registers for each reader. A character imput, such as a tape or the like, is read in advance and compared with the characters in the short term storate registers for coincidence. When coincidence occurs, a comparator cancels the stored signal in the coinciding register and transfers the character to an address store register capable of storing one or more characters, where it is retained until called for by the phototypesetter. The apparatus speeds-up "read-off" time by reading the imput sequence in advance of the output by one or more characters, and by identifying a chosen character and predicting its arrival time.

3,707,903
FLASH INDICATOR FOR PHOTOFLASH LAMPS

Kurt H. Weber, Pepper Pike, Ohio, assignor to General Electric Company

Filed Dec. 4, 1970, Ser. No. 95,102
Int. Cl. G03b 15/03
U.S. Cl. 95—11.5 R **15 Claims**

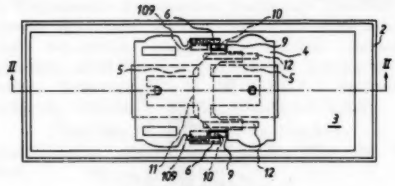


In an arrangement of photoflash lamps, one or more of the lamps is provided with a flash indicator pin adhered thereto by means of lacquer or other material which softens due to heat generated when the lamp is flashed, thus permitting the indicator pin to be movable upon the lamp flashing. The flash indicator pin extends from the lamp and coacts with an indicator mechanism in a camera for indicating in the viewfinder whether or not an unflashed lamp is available in position to be flashed, and/or for locking the camera mechanism to prevent operating the shutter if a previously flashed lamp is placed in operating position.

3,707,904
PHOTOGRAPHIC APPARATUS WITH BRAKING MEANS FOR ROLL FILM

Dieter Engelsmann; Fritz Kessler, both of 8025 Unterhaching; Dieter Mass, and Kurt Zattler, both of 8 Munich 90, all of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

Filed July 26, 1971, Ser. No. 165,911
Claims priority, application Germany, July 30, 1970, G 70 28 784.2
Int. Cl. G03b 1/48, 17/28
U.S. Cl. 95—31 R **10 Claims**



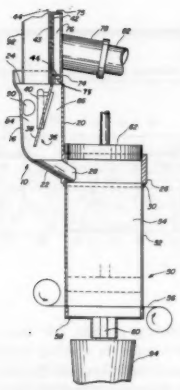
A still camera wherein a spring-biased pressure plate is mounted on a movable wall of the housing and is provided with apertures adjacent to the marginal portions of roll film which is guided in a channel in front of the pressure plate. The movable wall further supports a spring-biased plate-like carrier which is located behind the pressure plate and is provided with braking members extending through the apertures of the pressure plate and into the channel to engage the respective marginal portions of roll film in the channel and to prevent uncontrolled lengthwise movements of the film. The braking members have convex film-engaging surfaces and bias the respective marginal portions of the film against guide surfaces provided on the main body portion of the camera housing. When the channel is empty, the carrier abuts against the rear side of the pressure plate.

3,707,905

INTAKE AND EXHAUST SYSTEM FOR AUTOMATIC COFFEE BREWER

Owen J. Schwertfeger, Hartville, Mo., assignor to The Seeburg Corporation of Delaware, Chicago, Ill.

Filed Oct. 21, 1971, Ser. No. 191,212
Int. Cl. A23f 1/00
U.S. Cl. 99—289 6 Claims



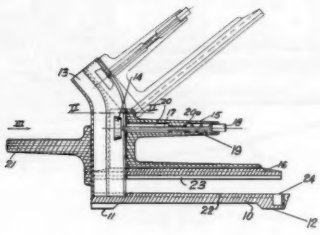
A hollow vertically aligned manifold is provided in communication with the intake orifice of a brew chamber of an automatic coffee brewing machine. A partition divides the manifold into an intake chute and exhaust channel. The intake end of the exhaust channel is positioned immediately above the intake orifice of the brew chamber, and the opposite end of the exhaust channel is connected to an exhaust fan. Coffee and hot water when introduced into the intake chute flow into the intake orifice of the brew chamber, and steam and moist air emitted from the intake orifice of the brew chamber are exhausted through the exhaust channel.

3,707,906

TWO-PLATE GRIDDLE

Paul Marrie, Dijon, France, assignor to Societe a Responsabilite Limitee dite ETUD, Quetigny (Cote d'Or), France

Filed Oct. 15, 1970, Ser. No. 80,838
Int. Cl. A47j 37/06
U.S. Cl. 99—372 9 Claims



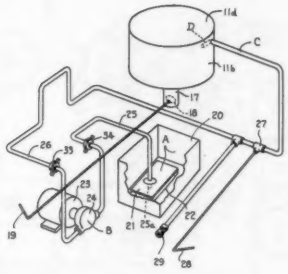
A cooking griddle has a pair of heat-storing plates with interfitting faces. The two plates are brought into engagement and one of them is heated directly so that the other is heated by conduction. Once a predetermined temperature is reached the heat is arrested and a piece of food, preferably meat, is clamped between the two faces and cooked with the heat stored in the two plates. An indicator is provided to show when the plates are sufficiently hot for cooking, and a thermostat can be provided to shut down the heat, if the unit is heated electrically, when a predetermined temperature is reached.

3,707,907

CLEANING DEVICE FOR DEEP FAT COOKER

Robert G. Wilson, 165 Faris Circle, and Raymond W. Rogers, 414 Potomac Ave., both of Greenville, S.C.

Filed April 26, 1971, Ser. No. 137,225
Int. Cl. A47j 37/12
U.S. Cl. 99—408 2 Claims



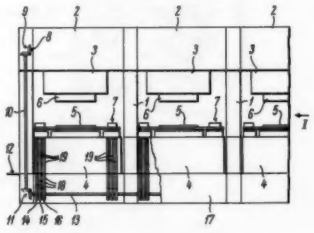
Means for filtering the liquid cooking medium and for cleaning the pot of a deep fat pressure cooker include means for pumping filtered cooking medium from the filter means and returning the filtered cooking medium under pressure to the pot with spray means within the pot directing the filtered cooking medium under pressure in a stream across the inner surface of the pot, washing cooked food particles impinging thereon away for further filtering.

3,707,908

PRESS EQUIPPED WITH A TRANSFER DEVICE

Lothar Merk, Eislingen/Fils; Wolfgang Michael, and Werner Munch, both of Goppingen, all of Germany, assignors to L. Schuler GmbH, Goppingen, Germany

Filed Dec. 8, 1970, Ser. No. 96,174
Int. Cl. B30b 15/30
U.S. Cl. 100—207 20 Claims



A transfer press having a series of rams each provided with a transfer mechanism which are independently driven, the transfer mechanism being supported on means such as a table or base plate moveable from an operative position within the press frame to a withdrawn position to enable the transfer mechanism and the tool parts of any selected ram or rams to be withdrawn as when changing or replacing tools.

3,707,909

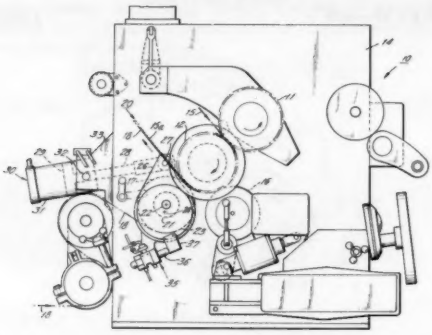
PRESSURE ROLL LOADING

Hank Volkers, Aalsmeer, Netherlands, assignor to S & S Corrugated Paper Machinery Co., Inc., Brooklyn, N.Y.

Filed Aug. 13, 1971, Ser. No. 171,619
Int. Cl. B30b 15/14, 3/04
U.S. Cl. 100—47 6 Claims

In a single facer, the roll for applying pressure to the liner web forcing it against the glue containing flute tips of the corrugated web is moved between operating and retracted posi-

tions by double acting power cylinder means operated by relatively high pressure fluid. When the pressure roll reaches its operating position, it operates a control valve to automatically control application of an opposing pressure, at lower than said



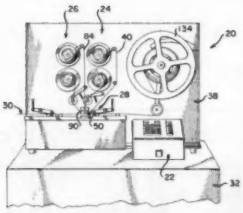
high pressure, to the double acting cylinder means so that the net force maintaining the pressure roll in its operating position is derived from the net value of the high and opposing pressures.

3,707,910

OPTICAL BAR CODE SERIAL PRINTER

Ollah Combs, Morrow, Ohio, assignor to The National Cash Register Company, Dayton, Ohio

Filed June 30, 1970, Ser. No. 51,071
Int. Cl. B41f 1/44; B41j 5/44, 33/00
U.S. Cl. 101—93 C **2 Claims**



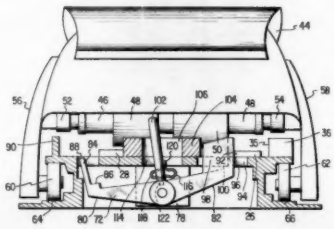
A printing apparatus for recording data according to a predetermined code on a record medium. The apparatus includes first and second recording stations and a feed mechanism for successively feeding the record medium thereto in equal increments so as to provide equally-spaced recording locations on the medium. First and second indicia (like stripes printed in first and second colors) are recorded on the record medium at the appropriate recording locations in conformity with the code. One surface of the medium is used for a third indicium, and the first and second indicia are recorded thereon in the form of parallel stripes. Data to be recorded on the medium are entered on a keyboard whose output is fed to logic circuitry which controls printing apparatus at the first and second recording stations, and the feed mechanism. The code used is of the transition type, which uses three different indicia. Each succeeding indicium on the record medium is always different from the next preceding one, so as to eliminate the need for a separate clocking pulse on the medium.

3,707,911

DOCUMENT POSITIONING MEANS FOR USE WITH AN IMPRINTER

James M. Patterson, Jr., Fairfax County, Va., assignor to Farrington Business Machines Corporation, Springfield, Va.

Filed Nov. 4, 1970, Ser. No. 86,704
Int. Cl. B41f 3/20, 3/50
U.S. Cl. 101—269 **7 Claims**



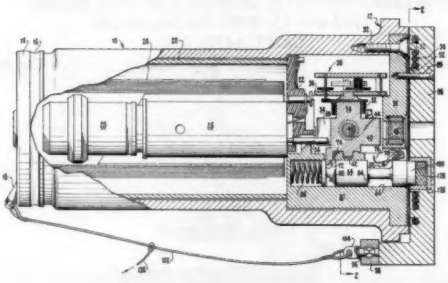
Document positioning means for use with an imprinter whereby a document such as a sales invoice may be fixedly located at two different positions on the print bed thereof. The first position may be removed from the second position in two directions—that is, along the length and width of the print bed.

3,707,912

MECHANICAL FUZE WITH SELF-DESTRUCT MECHANISM

Cecil L. Duncan; John F. McNelia, both of Silver Spring, and William C. Pickler, Fulton, all of Md., assignors to The United States of America as represented by the Secretary of the Navy

Filed Aug. 20, 1971, Ser. No. 173,446
Int. Cl. F42c 1/14
U.S. Cl. 102—7.4 **8 Claims**

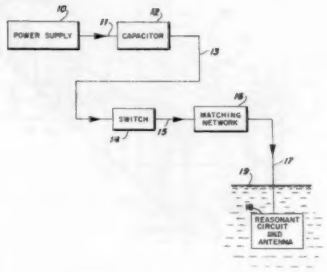


A mechanical fuze for aerial ordnance devices having an extendable probe, and impact sensor mounted on the probe, an impact responsive inertia weight operable with an auxiliary firing pin as a backup for the probe sensor, and a self-destruct assembly. The self-destruct assembly includes a percussion primer actuated during extension of the probe and coupled to a thin column of deflagrating material sheathed in a flexible metal and having an explosive charge at its terminal portion for driving a piston against the inertia weight if both the probe sensor and inertia weight remain unactivated when the column burn front reaches the explosive charge, thereby detonating the device through the auxiliary firing pin.

3,707,913
PULSED-ENERGY DETONATION SYSTEM FOR ELECTRO EXPLOSIVE DEVICES

Willis L. Lee, 1879 Marlowe Street, Thousand Oaks, Calif.

Filed July 31, 1969, Ser. No. 849,256
Int. Cl. F42b 22/30
U.S. Cl. 102—18 1 Claim

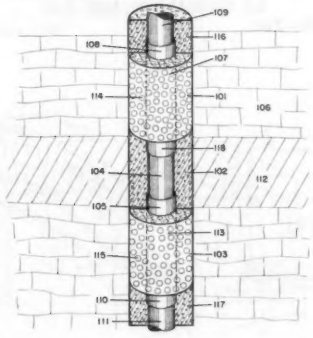


The invention comprises a technique and apparatus for destroying electro-explosive devices such as underwater mines by subjecting them to intense electromagnetic radiated fields. A unique arrangement of a capacitor which discharges into a resonant circuit including an antenna is used to generate the high energy field by pulse techniques.

3,707,914
EXPLOSIVE STIMULATION WELL COMPLETIONS

Karl M. Land, Tulsa, Okla., assignor to Cities Service Company, Tulsa, Okla.

Filed Dec. 11, 1970, Ser. No. 97,202
Int. Cl. F42d 1/00
U.S. Cl. 102—20 8 Claims

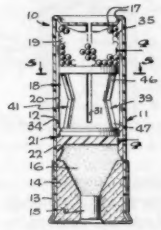


Disclosed is a method and apparatus for preventing damage to the tubular goods and cement sheath of wells during an explosive stimulation treatment. The invention includes the use of periodic intervals of a shock absorbing medium in the cement sheath of a well bore to absorb the damaging shock energy emanating from explosions, used to stimulate producing zones, by the placement of the shock absorbing medium in the cement sheath above and below the wellbore zone to be stimulated.

3,707,915
WAD ASSEMBLY FOR SHOTGUN SHELL

Jack A. Kerzman, 18606 East Leadora Avenue, Glendora, Calif.

Filed Oct. 19, 1970, Ser. No. 81,690
Int. Cl. F42b 7/06, 7/08
U.S. Cl. 102—42 C 18 Claims

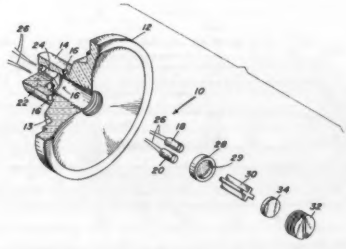


A wad assembly for a shotgun shell, including two separately formed parts, one of which has a portion at one end for receiving the force of a powder charge, and has a split sleeve portion projecting toward its opposite end for receiving at least some of the shot. The second part is receivable within the shot sleeve of the first part, at a location to transmit axial forces to the shot charge, and includes a transverse wall for acting against the shot, and one or more posts which are bendable to changed conditions to allow for reception of different amounts of shot, and to also cushion the axial forces produced on firing.

3,707,916
IGNITER ASSEMBLY

Daniel Meraz, Jr.; Anthony J. Simhauser, both of China Lake; Jack A. Yeakey, Ridgecrest, and David W. Carpenter, China Lake, all of Calif., assignors to The United States of America as represented by the Secretary of the Navy

Filed July 30, 1970, Ser. No. 64,919
Int. Cl. F42c 19/12
U.S. Cl. 102—49.7 6 Claims

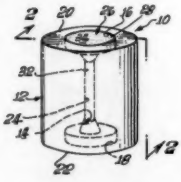


An igniter assembly for a rocket motor is positioned within a hollow boss of a heat barrier composed of phenolic asbestos and provided with two gussets for proper orientation and which prevent rotation of four equally spaced igniter ports with the rocket motor propellant grain perforation The igniter assembly comprises a pair of electrical squibs located within sockets in the hollow boss, a booster charger assembly containing booster powder compressed against the electrical squibs, a cross-shaped igniter propellant grain having one end inserted in the booster charge assembly, an igniter cushion to absorb shock, and a closure plug to receive the other end of the propellant grain and to retain the igniter assembly within the hollow boss of the heat barrier.

3,707,917
PRECISION INITIATION COUPLER

Louis Zernow, Glendora, and Arthur Louis Mottet, Pacific Palisades, both of Calif., assignors to Whittaker Corporation

Filed Dec. 23, 1970, Ser. No. 91,664
Int. Cl. F42b *19/08*
U.S. Cl. 102—70 R 10 Claims

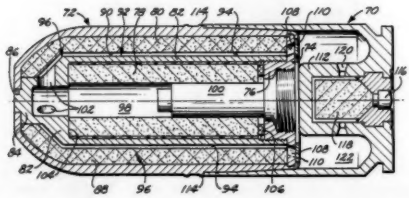


A device for funneling a detonation wave from a detonator to a main explosive charge to substantially eliminate the detrimental effects of axial misalignment of the detonator and main explosive charge, comprising a detonation-confining body carrying therein a generally I-shaped explosive extending axially through it. The device is placed between a detonator and main charge and in axial alignment with the latter. A detonation wave from the detonator may be eccentrically received by one end of the I-shaped explosive, but it is funnelled down the column of the I, which is in axial alignment with the main charge, so that the latter "sees" an axially-aligned detonation wave emanating from the other end of the I. The explosive, the material forming the detonation-confining body and the dimensions of the I-shaped charge are selected to insure that there is substantially no interference with the detonation of the I-shaped explosive, to preferably maximize the detonation velocity through the explosive, and to ensure that detonation of the main explosive is initiated from the I-shaped explosive and not from the confining body.

3,707,918
AEROSOL DISSEMINATOR

Danny D. Dunfee, Fairfax; Robert W. Evans, Herndon, and Richard C. Grimm, Triangle, all of Va., assignors to The Susquehanna Corporation, Fairfax County, Va.

Filed Feb. 26, 1971, Ser. No. 119,280
Int. Cl. F42b *13/46*
U.S. Cl. 102—90 11 Claims

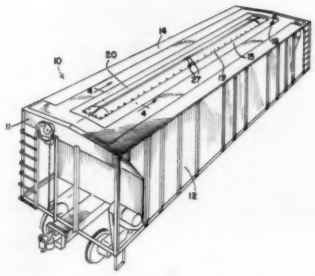


An embodiment of the invention disclosed herein shows a two-compartment disseminator for generating aerosols of smoke, poisons, gases, and other lethal and non-lethal agents. One disseminator compartment houses the propellant and the other compartment houses the agent. These two compartments are coaxially disposed, and a tubular bulkhead separates these two compartments. Sonic nozzles are formed in this bulkhead. The gases generated by propellant combustion are vented through these nozzles at sonic velocity into passageways formed in the solid agent. The agent is eroded, finely atomized and vaporized by the gases and expelled through exit orifices. The vaporized agent now condenses into minute particles to form with the gas an aerosol having long-term effectiveness. Close control of agent concentrations and dissemination time is also achieved. The coaxial arrangement enables higher loading ratios of agent to propellant as compared to a tandem arrangement.

3,707,919
RAILROAD HOPPER CAR WITH FLEXIBLE HATCH COVER

Franklin P. Adler, Michigan City, Ind., assignor to Pullman Transport Leasing Company, Chicago, Ill.

Filed Dec. 16, 1970, Ser. No. 98,518
Int. Cl. B61d *39/00*
U.S. Cl. 105—377 4 Claims

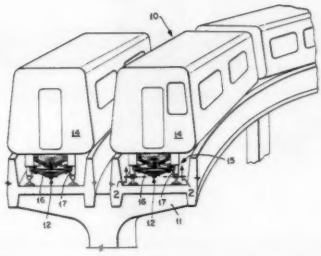


A railway hopper car includes a roof structure having an elongated hatch opening through which the car is loaded. A cover for the opening includes a pair of elongated flexible sheets having outer edges connected to the roof around the peripheral edges of the hatch opening and inner edges of the flexible sheets in adjacent relation are provided with slide fastener means permitting the cover to be opened to expose the entire length of the hatch and operable to close the hatch opening with the cover in sealed relation. The fastener means includes a pair of slide members which may be moved longitudinally along the cover to provide a limited access to the interior of the car in spaced locations along the length of the cover.

3,707,920
LATERAL RAILWAY SPRING SUSPENSION SYSTEM

John A. Germer, Doylestown, Pa., assignor to The Budd Company, Philadelphia, Pa.

Filed Oct. 28, 1970, Ser. No. 84,682
Int. Cl. B61f *3/00*, *5/02*, *5/30*
U.S. Cl. 105—210 4 Claims



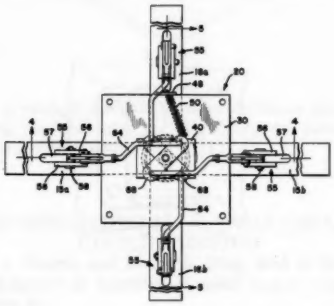
A lateral spring suspension system for attenuating lateral truck movements relative to a carbody and a track for acceptable ride comfort. A pair of tow bars pivotally connected to the truck frame with spring loaded guide means therebetween serve to cushion lateral movements of the truck relative to the carbody and the track. Torques generated by accelerating and braking are transmitted into the carbody through the upper and lower tow bars.

3,707,921

CROSS-TRACK SWITCH

George E. Fort, New Castle, Ind., assignor to American Standard Inc., New York, N.Y.

Filed Dec. 18, 1970, Ser. No. 99,629
Int. Cl. E01b *25/26*
U.S. Cl. 104—99 2 Claims



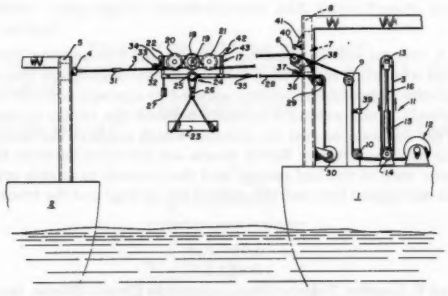
An automatic cross-track switch includes trolley-actuated triggers in each track leg which operate to rotate a turntable to permit a trolley to be operated on either one of two intersecting tracks. The turntable mechanism includes an overcenter spring mechanism which assures full movement of the turntable when an appropriate one of the fingers is contacted. If the turntable is already in the correct position, the triggers are deflected out of the way.

3,707,922

SELF-PROPELLED VEHICLE SYSTEM FOR USE IN TRANSFER OF MATERIALS

Richard H. F. Dillon, Apt. 1001 257 Lisgar St., Ottawa, Ontario, Canada

Continuation-in-part of Ser. No. 727,906, May 9, 1968, abandoned. This application Dec. 4, 1970, Ser. No. 95,019
Claims priority, application Canada, May 29, 1967, 991714
Int. Cl. B61b *7/06*
U.S. Cl. 104—114 14 Claims



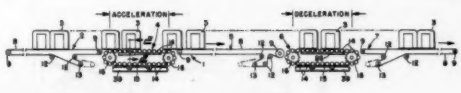
A ship-to-ship or ship-to-shore material conveying system comprises a load line extending between a supply station and a receiving station and means for keeping the load line under substantially constant tension. A self-propelled load carrying vehicle is arranged to travel along the load line and has means for reducing impact between the vehicle and one of the stations which may move with respect to the other.

3,707,923

VARIABLE SPEED CONVEYOR

Gerald L. Woodling, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Aug. 19, 1971, Ser. No. 173,090
Int. Cl. B65g *17/24*
U.S. Cl. 104—137 16 Claims



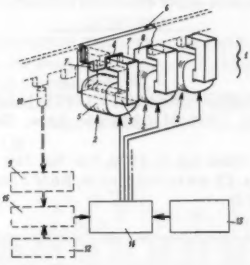
A conveying system for accelerating or decelerating passenger and load carrying platforms in which the platforms engage cylindrical surfaces of a series of rollers linked together and pulled along inclined rails. The rollers also have substantially conical faces which engage the rails at areas of different diameters causing the speed of revolution of the rollers to vary and thereby changing the speed of the platforms.

3,707,924

ELECTROMAGNETIC MOTION IMPARTING MEANS AND TRANSPORTOR SYSTEM EMBODYING THE SAME

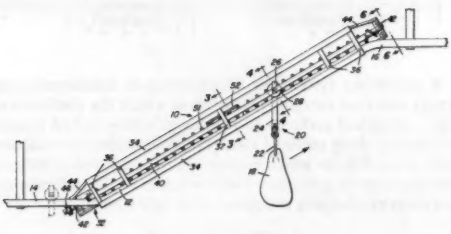
Maurice Barthalon, 78 Avenue Henri Martin, Paris; Auguste Moiroux, Ecole Centrale Lyonnaise, Ecully, Rhone, both of France, and Patrick Watson, Park Farm House, Farm Lane, Ashtead, England

Division of Ser. No. 697,089, Jan. 11, 1968, abandoned. This application April 28, 1970, Ser. No. 32,774
Claims priority, application France, Jan. 25, 1967, 6792411
Int. Cl. B60l *13/00*; H02k *41/02*
U.S. Cl. 104—148 LM 40 Claims



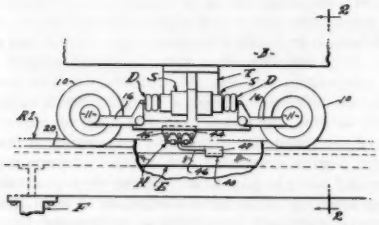
An electromagnetic device producing a mechanical action, as in a transporter system comprising a suspended car, or in an electric motor, includes a magnetizing assembly and a magnetized assembly adapted to move one with respect to the other. The magnetizing assembly comprises at least one magnetic circuit defining an air gap and provided with at least one inductor winding, the magnetized assembly, subjected to the action of the magnetizing assembly comprising at least one magnetic portion associated with at least one non-magnetic portion and being in part housed in the air gap of said magnetizing assembly. This latter comprises at least two electromagnetic units each comprising an air gap and disposed in line whereas said magnetized assembly comprises a number of separate magnetic sections at least equal to two, the pitch of which is different from that of the electromagnetic units of said magnetizing assembly, said magnetic sections being coupled together mechanically, separated by non-magnetic sections and constituting a series in line. The windings of said electromagnetic units are connected to a switch adapted to ensure their energization following a predetermined sequence, guiding means being provided so as to permit the displacement of the magnetic sections of said magnetized assembly in the air gaps of said electromagnetic units in a transverse direction relative to the lines of force in said air gap.

3,707,925
REVERSIBLE INCLINED CONVEYOR FOR MEAT CARRYING TROLLEYS
Robert M. Byrnes, Sr., Box 1121 Ames Avenue Station, Omaha, Nebr.
Filed May 4, 1971, Ser. No. 140,112
Int. Cl. B61b *13/12*; B65g *33/04*
U.S. Cl. 104—167 11 Claims



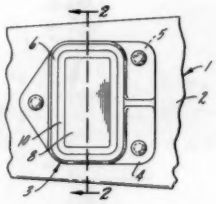
An inclined screw conveyor assembly for moving meat trolleys is provided which includes an elongated screw shaft rotatably mounted within a support frame having an inclined trolley rail attached thereto for support of the trolley wheel of a meat carrying trolley, a shaft support bearing at each end of the screw shaft, an adjustable intermediate sleeve bearing which engages the outermost surfaces of the screw shaft to prevent flexing or buckling thereof, and a side guide rail extending along the length of the support frame for maintaining the trolley in proper alignment with the trolley rail. Each end of the screw shaft extends beyond the ends of the inclined trolley rail to deliver and receive the meat trolleys to and from relatively horizontal upper and lower sections of trolley rail.

3,707,926
RAILWAY VEHICLE HEIGHT CONTROLLING SYSTEM
Floyd P. Ellzey, 2301 Marshallfield Lane, Redondo Beach, Calif.
Filed Jan. 5, 1970, Ser. No. 769
Int. Cl. B61b *5/02, 9/00*; B61f *11/00*
U.S. Cl. 104—1 R 10 Claims



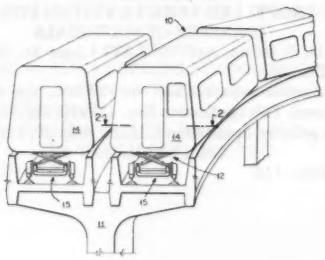
A roadbed height controlling system for the carriages of track supported trucks, especially for example of trains and/or monorails, and characterized by a precisely positioned height controlling element disposed protectively between and independently of the tracks and transversely spaced wheels of the truck, the height control being of the type wherein the said controlling element is supported independently of the roadbed and not subjected to deflective loading. This protectively positioned controlling element concept is applicable to column supported roadbeds, and suspended roadbeds as well.

3,707,927
RESILIENT TRUCK SIDE BEARINGS
Robert P. Geyer, Palatine, and Robert W. Gierlach, Downers Grove, both of Ill., assignors to Standard Car Truck Company, Chicago, Ill.
Filed Sept. 28, 1970, Ser. No. 76,015
Int. Cl. B61f *5/14*; F16c *17/04, 17/08*
U.S. Cl. 105—199 CB 4 Claims



A side bearing for railroad car trucks having elements in constant contact and compressible at variable rates as the railroad car and truck side move relatively toward each other.

3,707,928
VERTICAL RAILWAY SPRING SUSPENSION SYSTEM
John A. Germer, Doylestown, Pa., assignor to The Budd Company, Philadelphia, Pa.
Filed Oct. 28, 1970, Ser. No. 84,692
Int. Cl. B61f *3/00, 5/02, 5/30*
U.S. Cl. 105—210 5 Claims

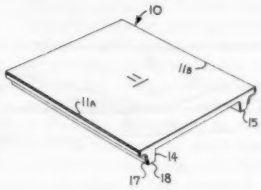


A vertical spring suspension system for transmitting loads from a carbody to a wheel-axle truck. The suspension system includes opposed leaf springs secured to opposite sides of the carbody which extend diagonally beneath the center portion of the carbody to rest on journals which support the wheel-axle unit for rotation. Roller means are provided between the lower ends of the leaf springs and the journals to enable relative movement between the ends of the springs and the truck.

3,707,929
PALLET
Fred E. Lauffer, Toledo, Ohio, assignor to Owens-Illinois, Inc.
Filed May 28, 1971, Ser. No. 148,025
Int. Cl. B65d *19/00*
U.S. Cl. 108—51 1 Claim

A pallet for use in a flow rack loading system, wherein the pallet is mounted on guide tracks, said pallet having a platform comprising a crenelated reinforcing deck and a pair of supporting pads, integrally attached to the deck and positioned beneath the platform, offset from the corresponding platform

edges, the pads having a sloping wall for contact with the guide track, and a plate positioned on the lower surfaces of the



platform in each of the area between the bases and the corresponding platform edge for positioning the pallet on the guide tracks of the loading rack.

3,707,930

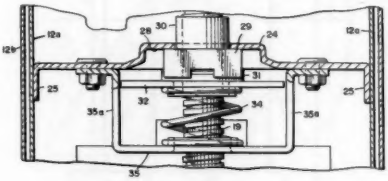
POWER OPERATED PEDESTAL TABLE AND SAFETY CLUTCH THEREFOR

Leonard J. Yindra, and Joseph R. Klug, both of Manitowoc, Wis., assignors to American Hospital Supply Corporation, Evanston, Ill.

Filed July 26, 1971, Ser. No. 165,963

Int. Cl. A47b *9/00*

U.S. Cl. 108—147 **14 Claims**



A power-operated pedestal table having an extendable column for selectively varying the elevation of the table top. The column includes a pair of telescoping sections which are expanded and contracted by a power driven screw shaft. A one-way safety clutch automatically disengages the upper section from further downward movement under power when such downward movement is restrained by an obstruction such as, for example, an item of furniture or the operator himself.

3,707,931

FURNACE FOR THE COMBUSTION OF SOLIDS

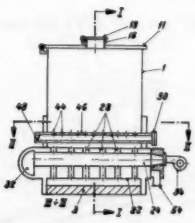
Walter Ruegsegger, Tobelhofstrasse 348, 8044 Zurich, Switzerland

Filed July 30, 1970, Ser. No. 59,475

Claims priority, application Switzerland, Aug. 18, 1969, 12526/69

Int. Cl. F23g *7/00*

U.S. Cl. 110—8 C **19 Claims**



A shaft furnace equipped with grates, air supply ducts, flues wherein at least one grate forms a fireplace with an air supply duct and the flues.

3,707,932

ELECTRICAL CONNECTOR, METHOD AND APPARATUS

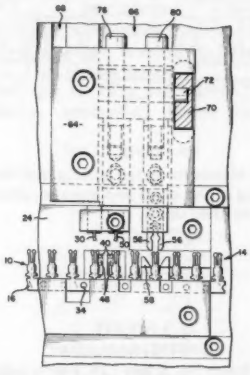
Robert Maclay Murray, Elizabethtown, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Division of Ser. No. 864,787, Oct. 8, 1969, Pat. No. 3,587,502.

This application Aug. 28, 1970, Ser. No. 68,033

Int. Cl. B21d *53/36*

U.S. Cl. 113—119 **6 Claims**



An electrical connector formed by a die blanking operation having an improved smooth edge contact surface formed by a fine scraping of said edge to remove the rough fractured surface remaining after the blanking operation; also, the method and apparatus for forming said improved smooth contact surface.

3,707,933

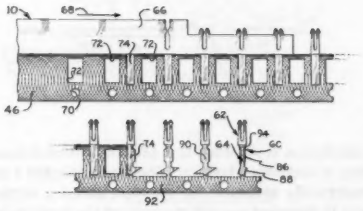
APPARATUS FOR TERMINAL MANUFACTURE

Quentin Berg, c/o Berg Electronics, Inc., Exit 16, York Expressway, New Cumberland, Pa.

Filed Dec. 21, 1970, Ser. No. 100,252

Int. Cl. B21d *53/36*

U.S. Cl. 113—1 R **4 Claims**



An end mill is used to form a reduced thickness step in an indefinite length of strip material. If, due to tolerances and other factors the reduced thickness material is slightly too thick, it is swaged to a reduced thickness following which terminals are formed of both the thinned and original thickness material.

3,707,934

FLOATING STABLE TERMINAL

Ernst G. Frankel, Cambridge, Mass., assignor to Interstate Oil Transport Co., Philadelphia, Pa.

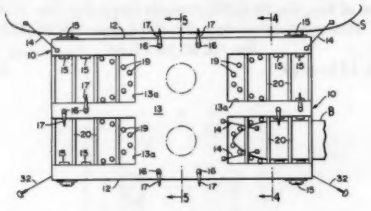
Filed Jan. 14, 1971, Ser. No. 106,446

Int. Cl. B63b *35/00, 21/00*

U.S. Cl. 114—0.5 R **25 Claims**

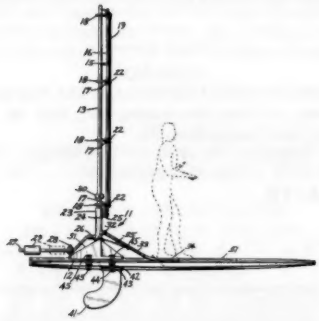
A horizontal bank of structurally tied, horizontally extending, usually submerged storage cylinders. An above water, horizontal wing structure fitted for berthing ships alongside. A

plurality of rows of vertical struts joining the cylinder bank and wing structure, and providing therebetween slips for



docking barges. Means for cargo storage and transfer. Provision for ballasting of the struts and storage cylinders. Support facilities for the berthed ships.

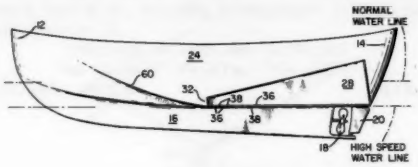
3,707,935
SURFING SAILBOAT
John B. Rachie, Route No. 3, Box 126, Forest Lake, Minn.
Filed Sept. 16, 1970, Ser. No. 72,762
Int. Cl. B63h *9/06*
U.S. Cl. 114—39 **14 Claims**



The disclosure is directed to a sailboat which is constructed for riding in surfboard fashion. The boat includes a sail which is symmetrically mounted for rotation about a vertical mast. The mast is disposed toward the rear of the boat in order that wind striking the sail may serve to both steer and power the boat, and to give the rider unobstructed forward vision. Direction of boat movement is determined by angular deviation or side tipping of the boat hull from its normal floating position. Tipping is affected by weight shifting on the part of the rider, and is sensed by apparatus which governs attitude of the sail with respect to the wind.

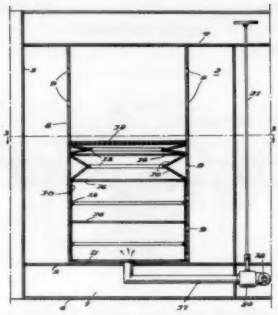
3,707,936
BOAT HULL CONSTRUCTION
Henry B. Harris, Box 303, San Bruno, Calif.
Filed Sept. 17, 1970, Ser. No. 73,002
Int. Cl. B63b *1/22*
U.S. Cl. 114—66.5 P **9 Claims**

A boat hull of the double end displacement type having a pair of pivotal planes mounted on the lower portion of the after end of the hull such that when the planes are pivoted to a substantially horizontal position the hull rides up out of the water thereby increasing the speed of the boat. A pair of water



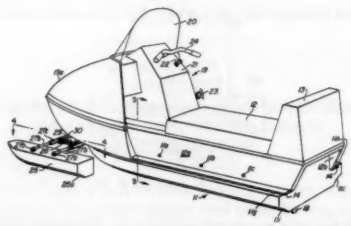
deflectors are disposed on the hull forward of the pivotal planes to prevent bow waves generated during movement of the hull from passing over the planes.

3,707,937
ANTI-POLLUTION BALLAST CONTAINER
Harry Liles, Route 2, Box 82, Brunswick, Ga.
Filed April 23, 1971, Ser. No. 136,916
Int. Cl. B63b *25/08*
U.S. Cl. 114—74 R **10 Claims**



An anti-pollution ballast container to be installed in an oil tanker as a receptacle for clean ballast water, to be located in a compartment of the tanker which is adapted to be filled with oil. The container is formed of elastic material such as rubber and is constructed for collapsing within the compartment as the latter is filled with oil, with support rings between the folds of the compartment wall slidable within the compartment as the container expands or contracts. The container is adapted to be filled with clean ballast which may be taken from the sea and pumped into the container for ballast when the compartment is empty of oil. A similar container may be provided in several or all of the compartments of the tanker.

3,707,938
SELF-PROPELLED WATER VEHICLE
John R. Olson, P.O. Box 689, Price, Utah
Filed Aug. 3, 1970, Ser. No. 60,361
Int. Cl. B60f *3/00*
U.S. Cl. 115—1 R **8 Claims**



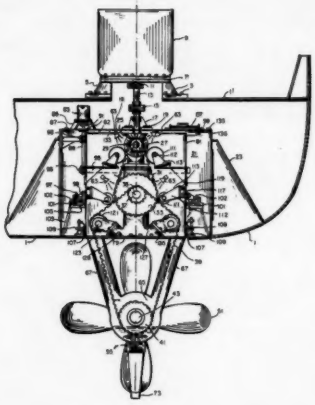
A self-propelled water vehicle has a structural assembly which includes an elongate, water-tight hull adapted to pro-

vide seating for one or more persons along the top thereof and means, such as propellor or jet unit, for propelling the vehicle along the surface of a body of water. A control housing disposed at the forward end of the hull contains drive means operationally connected to the propelling means, and also encloses a steering control mechanism connected to a pair of pontoons disposed at opposite lateral sides, respectively, of the forward end of the hull. The pontoons are pivotally connected to the vehicle by support means. The vehicle is preferably constructed for conversion to a snowmobile by replacement of the pontoons and the water-tight hull, respectively, with pairs of skiis and an elongate snowmobile hull having endless track propelling means attached to the bottom thereof for propelling the vehicle over snow. In fact, existing snowmobiles may also be readily converted to the vehicle of the invention by use of the disclosed structural assembly.

3,707,939
STEERING ASSEMBLY

John A. Berg, Miami, Fla., assignor to Schottel of America, Inc.

Filed Nov. 16, 1970, Ser. No. 89,551
Int. Cl. B63h *25/42*
U.S. Cl. 115—35 **19 Claims**

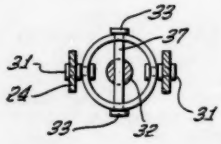


A combined power propulsion and steering mechanism assembly for use especially in ocean-going vessels wherein the assembly comprises a flexible drive transmission for connecting the power unit to the propeller drive shaft, the drive transmission and its associated gearing being housed within a power-operated, rotating steering cylinder capable of laterally rotating the propeller about a vertical axis a complete 360°.

3,707,940
SAFETY ALARM ASSEMBLY FOR SWIMMING POOLS AND THE LIKE

George T. Sherrick, 7542 Bloomington Avenue, Burbank, and William E. Seelinger, 5826 Murietta Avenue, Van Nuys, both of Calif.

Filed June 23, 1971, Ser. No. 155,858
Int. Cl. G08b *3/02*
U.S. Cl. 116—67 **10 Claims**

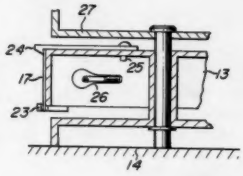


An alarm has a trigger mechanism actuatable by the influence of gravity. A tiltable support which is preferably a pivotally mounted shaft-like member with a seat at its upper end is operable when in its at rest position to support the trigger mechanism to counteract the influence of gravity. A float is connected to tilt the support away from its at rest position as a function of pool disturbance so that the trigger mechanism slips from the support seat and actuates the alarm to indicate pool disturbance.

3,707,941
CHANNEL INDICATING MEANS FOR TELEVISION RECEIVERS

Hidenori Kunishige, Moriguchi, and Kosaku Uchida, Neyagawa, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Oct. 15, 1971, Ser. No. 189,529
Claims priority, application Japan, Oct. 20, 1970, 45/104865
Int. Cl. H03j *1/04*
U.S. Cl. 116—124.4 **6 Claims**

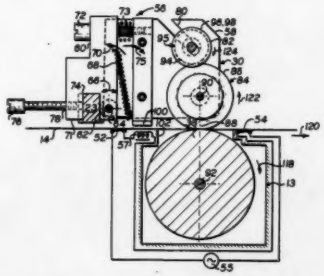


A channel indicating means for television receivers, which comprises a movable, for instance rotatable, channel indicating body interlocked to the channel selector and carrying channel indicating members such as cards bearing numeral prints removably attached to it. It is possible to change the channel indication very easily.

3,707,942
LINE MARKING APPARATUS

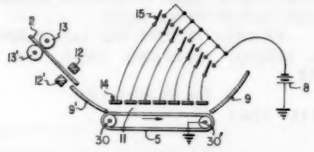
Mario Leri, 77 Seventh Avenue, New York, N.Y.

Filed May 28, 1970, Ser. No. 41,451
Int. Cl. B05c *1/08, 1/16*
U.S. Cl. 118—1 **11 Claims**



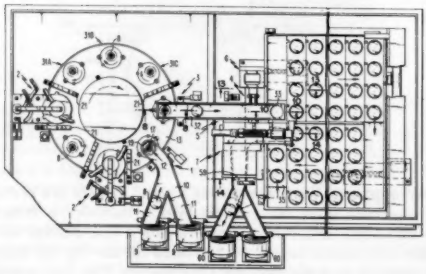
An apparatus for line marking a sheet. Means are provided for marking lines on a sheet which includes a rotatably mounted line inscribing means having a line printer and an inker. Additional means are provided for driving the sheet to be marked past the line marking means. The line printer is provided with one marking surface per line and is rotatably mounted in cooperative relation with the inker and the driving means so as to be inked by the former and substantially driven by the latter. The sheet is ink-marked with lines by the printer as it is driven past the printer. The location of a marked line on the sheet as well as the spacing between marked lines if more than one is inscribed, can be varied by changing the lateral position of the printer marker surfaces with respect to the sheet to be marked and/or each other. The marking means is provided with a variable means for adjusting the contact pressure between the line printer, the sheet to be marked, and the driving means.

3,707,943
ELECTROPHOTOGRAPHIC DEVICE
Seiji Matsumoto, and Yasuo Tamai, both of Saitama, Japan, assignors to Fuji Photo Film Co., Ltd., Ashigara-Kamigun, Kanagawa, Japan
Filed Jan. 8, 1971, Ser. No. 104,978
Claims priority, application Japan, Jan. 9, 1970, 45/2820
Int. Cl. B05c *11/00*
U.S. Cl. 118—7 10 Claims



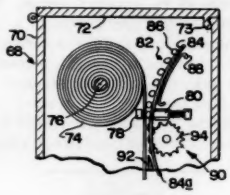
An electrophotographic device which comprises a detector which detects the entry of a sheet-shaped material provided in the path of the sheet-shaped insulating material to a development station including a developing electrode divided into smaller portions in the direction perpendicular to the direction in which the sheet is advanced, closing and opening circuits for application of electric potential to the portions of the developing electrode, and a delay circuit which receives the signal from the detector and makes the circuits close so as to apply electric potential only to the portions of the electrode confronting the sheet-shaped insulating material.

3,707,944
AUTOMATIC PHOTORESIST APPLY AND DRY APPARATUS
Forrest Robert Grundon, Wappingers Falls; Frank Harrison Masterson; Robert John Wagler, both of Poughkeepsie, and Fred Ernest Wustrau, Accord, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Oct. 23, 1970, Ser. No. 83,401
Int. Cl. C23c *13/10*
U.S. Cl. 118—50 6 Claims



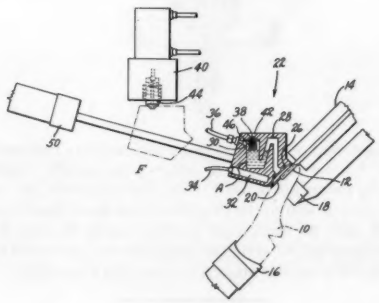
Apparatus for automatically positioning articles, as silicon semiconductor wafers, on rotary spin assembly mechanisms and indexing transporting means and a means for holding said wafer thereon combined with a means for dispensing a predetermined amount of photoresist solution on said wafers and spinning a uniform film of solution on the wafers and spin air drying through a sequence of rotating indexing steps followed by automatic transfer to and through drying means and a means for unloading therefrom and transporting the wafers to a receiver holder for further processing and transportation.

3,707,945
MEANS TO SELECTIVELY WET WEB MATERIAL
Philip Boone, 15 Fenwick Road, Winchester, Mass.
Continuation of Ser. No. 678,600, Oct. 27, 1967, abandoned.
This application June 18, 1970, Ser. No. 48,916
Int. Cl. B05c *1/06*
U.S. Cl. 118—234 17 Claims



Means to selectively wet a web include a continuous support carrying a plurality of frangible pods which each contain wetting agent, means to incrementally feed such pod whereby to locate such pod at a transverse edge of a web section to be wetted, means to fracture the pod at such location and means to effect relative motion of the web across the fractured pod and in the longitudinal direction of the web.

3,707,946
ADHESIVE APPLYING DEVICE
Anton Muhlbach, Frankfurt/Main-Sossenheim, Germany, assignor to USM Corporation, Flemington, N.J.
Filed April 28, 1971, Ser. No. 138,158
Claims priority, application Germany, May 6, 1970, P 20 22 274.6
Int. Cl. B05c *11/10*
U.S. Cl. 118—410 4 Claims

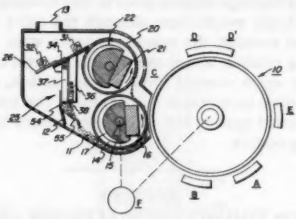


Apparatus for applying a thermoplastic adhesive to a shoe insole prior to lasting over the upper margin improved by an articulating applicator having nozzle plates for extruding the adhesive on the insole, a reservoir of a one-shot capacity, a compressed air ejection means, wherein the applicator articulates between an application position with the nozzle plate in contact with the insole and a retracted position where the one-shot reservoir is refilled for the subsequent application.

3,707,947
CROSS-CHANNEL MIXER
Louis W. Reichart, Jr., Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.
Filed Dec. 29, 1970, Ser. No. 102,474
Int. Cl. G03g *13/00*
U.S. Cl. 118—637 5 Claims

A developer circulating system, part of an electrostatic printing device, includes apparatus for mixing, agitating and distributing developer cyclically by diverting the normal

gravitational flow of the developer in its circulating cycle. The mixing, agitating and distributing device includes at least two banks of channels, with the channels common to one bank slanted in one direction and the channels common to the other bank slanted in the opposite direction. The channels of one



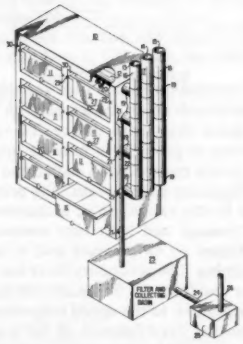
bank are so slanted or offset so as to efficiently walk the circulating developer, in cyclic steps, along the bank, channel by channel to the last channel in the bank and the last channel causes the circulating developer to switch banks thereby cyclically walking the developer back and forth along the banks effectively mixing, agitating and distributing the developer.

3,707,948

OYSTER SPAWNING FACILITY

Jay P. Dunathan, Tequesta, Fla., assignor to Oceanography Mariculture Industries, Inc., Riviera Beach, Fla.

Filed Dec. 1, 1970, Ser. No. 93,963
Int. Cl. A01k *61/00*
U.S. Cl. 119—4 **12 Claims**



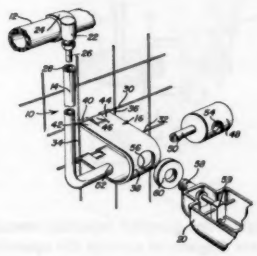
A single closed system facility is provided for both preconditioning and inducing oysters to spawn. The facility comprises an insulated cabinet having vertically arranged, slidably disposed trays or drawers which are supplied with water from a plurality of pipes, each conducting water of a different temperature, so that the temperature of the water in each tray may be selectively controlled by valving the proportion of the water being received therein from the respective pipes. Drain pipes from the trays feed into a vertical pipe disposed outside the cabinet which feeds into a filtering and collecting basin, from which the filtered water is pumped and returned to its source. Operatively, the upper trays may be used for conditioning oysters placed therein by providing water thereto and feeding the same with artificially grown food according to a prescribed program for a predetermined period of time. After this time, the oysters may be placed in the lower trays, wherein the water is maintained at a predetermined temperature most desirable for inducing the oysters to spawn. After spawning and fertilization of the eggs, removal from the spawning trays may be accomplished by siphoning the same into a nearby aquarium tank.

3,707,949

ADJUSTABLE MOUNTING BRACKET FOR FOWL CAGE MOUNTED WATERING CUPS

Dominic M. Lippi, c/o A. R. Wood Manufacturing Co., Box 218, Luverne, Minn.

Filed July 30, 1970, Ser. No. 59,469
Int. Cl. A01k *39/02*
U.S. Cl. 119—18 **8 Claims**



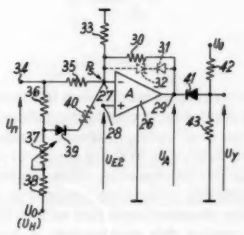
A water supply tube is fixedly mounted to a cage. A flexible delivery tube is connected at one end thereof to the supply tube and is connected at the other end thereof to a watering cup that is adjustable as to its vertical height with respect to the cage floor.

3,707,950

ELECTRONIC CONTROL SYSTEM FOR INTERNAL COMBUSTION ENGINES

Ewald Schlimme, Hildesheim, Germany, assignor to Robert Bosch GMBH, Stuttgart, Germany

Filed Oct. 16, 1969, Ser. No. 867,025
Claims priority, application Germany, Oct. 25, 1968, P 18 05 050.5
Int. Cl. F02b *3/00*; F02m *39/00*
U.S. Cl. 123—32 EA **50 Claims**



An injector injects fuel in each operating cycle, the quantity varying in dependence upon fuel control signal. A desired speed signal is furnished by circuitry associated with the gas pedal. An actual speed signal is also furnished. High gain direct amplifier means having an input circuit and a feedback circuit are adapted to furnish the fuel control signal as a function of both the desired speed signal and the actual speed signal. Various configurations of input circuits and feedback circuits, as well as amplifier output circuits, are illustrated for shaping the characteristic fuel-speed lines which determine motor operation.

3,707,951

STORAGE CONTROL FOR GASOLINE INJECTION INSTALLATIONS OF COMBUSTION ENGINES

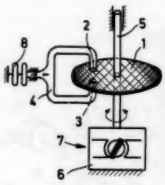
Erhard Bigalke, Wolfsburg; Dieter H. W. Pundt, Braunschweig, and Jurgen Wolf, Wolfsburg, all of Germany, assignors to Volkswagenwerk Aktiengesellschaft

Filed Sept. 30, 1970, Ser. No. 76,901

Claims priority, application Germany, Oct. 2, 1969, P 19 49 725.7

Int. Cl. F02b *3/10*; F02d *5/00*

U.S. Cl. 123—32 EA **4 Claims**



A storage control for gasoline injection installations of internal combustion engines to control the opening times of injection valves in dependence on operating conditions of the engine.

3,707,952

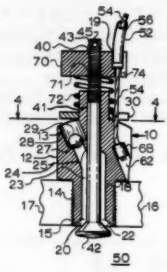
COMPRESSION RELEASE MECHANISM FOR TWO STROKE ENGINES USED TO BRAKE A VEHICLE

Andrew W. Knebel, 15444 S.E. 144th St., Renton, Wash.

Filed Aug. 20, 1970, Ser. No. 65,515

Int. Cl. F01l *13/08*; F02n *17/08*

U.S. Cl. 123—97 B **3 Claims**



A compression release mechanism is adapted for incorporation into the cylinder head combustion chamber structure of a two stroke, or two cycle, internal combustion engine to produce, when desired, a braking action to slow down a vehicle, such as a motorcycle. The compression release mechanism includes: a housing adapted to be threaded into the combustion chamber structure at a braking exhaust port provided to receive this mechanism; a braking valve positioned through the compression release housing and spring biased using a spring and its retainer to keep the braking valve in its normally closed position; an exhaust passageway network within the housing commencing at the braking exhaust port and terminating in multiple passageways, each with orifices able to discharge fluids into the atmosphere as the fluids come from the combustion chamber; valve balls used with each orifice to move clear of their seats and against their retaining structure as engine fluids flow out into the atmosphere, and to move in the opposite direction, under atmospheric and differential pressures, against their seats as outside air, generally laden with dust and dirt, attempts to enter the combustion chamber during such engine braking periods; and an enclosed cable control means adaptable to be secured at one end for pivotal actuation at a hand control location of a vehicle after its opposite end has been quickly and removably secured to the compression release mechanism by the convenient placement of its large abutment cable end in a lower restraining space, chamber, or recess in the compression release housing and immediately passing the cable, per se, respectively through aligned slots in this housing of the compression release mechanism, through the valve ball retainer and beyond through the combined valve stem retainer and valve spring retainer where the flexible control cable cover is secured, so upon control lever pivotal action, as the cable cover is caused to increase its curvature, the braking release valve is opened against the force of its return biasing spring and braking occurs.

3,707,953

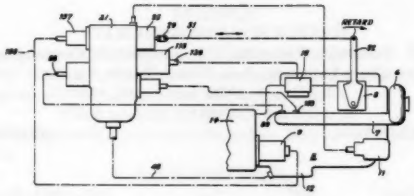
IGNITION TIMING CONTROLLER FOR AN ENGINE

Warren A. Rhoades, Jr., Danville, and Alfred R. Fleischer, Concord, both of Calif., assignors to De Laval Turbine California, Inc.

Filed Feb. 5, 1971, Ser. No. 112,981

Int. Cl. F02p *5/10*

U.S. Cl. 123—117 R **4 Claims**



An internal combustion engine with variable spark ignition timing is provided with an air intake passage, an oil pressure system and a speed responsive device. To vary the ignition spark timing there is provided a housing enclosing primary and secondary levers connected to each other at one end by a link pivoted at opposite ends thereto. The primary lever has a fulcrum moved by the expansion of a chamber connected to the air intake passage and is in turn connected to a servo mechanism actuated by oil pressure and in turn varying the spark ignition timing. The secondary lever has a fixed fulcrum and at the other end from the link is connected to an expansible chamber responsive to the speed responsive device. In an alternate version the fixed fulcrum of the secondary lever is replaced by an expansible chamber connected to an engine temperature responsive device. In another version, the servo mechanism is overridden by a plunger responsive to the engine starting cycle. In a fuel injection engine, the servo mechanism output is connected to the fuel injection timer.

3,707,954

EXHAUST GAS PURIFYING DEVICE

Masahiko Nakada, and Hirofumi Matsumoto, both of Toyota, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Aichi-ken, Japan

Filed June 17, 1971, Ser. No. 153,993

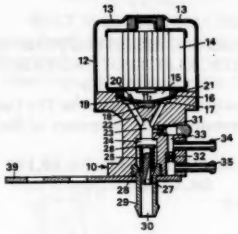
Claims priority, application Japan, Feb. 24, 1971, 46/9189

Int. Cl. F02p *5/10*; F02m *7/00*

U.S. Cl. 123—117 A **3 Claims**

An exhaust gas purifying device for internal combustion engines comprising a thermo-valve mounted in an air passage through which secondary air is supplied to the intake manifold and adapted to operate by responding to the degree to which the engine is warmed up, a flow rate regulating valve also mounted in said air passage through which secondary air is supplied to the intake manifold and adapted to regulate the

flow rate of secondary air supplied to the intake manifold in accordance with the operating condition of the engine, a first orifice and a second orifice provided in a branch passage branching from an air passage between said two valves, a first connecting line mounted between the portion of the branch passage which is disposed posterior to the first orifice and a diaphragm chamber of a vacuum advancer provided in the ignition distributor for maintaining communication therebetween, and a second connecting line mounted between the portion of the branch passage which is disposed posterior to the second orifice and a vacuum port of the carburetor for maintaining communication therebetween. The secondary air flow rate can be regulated and the degree of vacuum advance can be reduced in accordance with the operating condition of the engine.



3,707,955

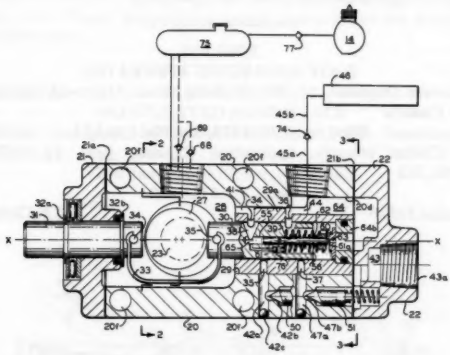
ENGINE APPARATUS

Otmar M. Ulbing, Lisle, N.Y., assignor to Borg-Warner Corporation, Chicago, Ill.

Continuation of Ser. No. 786,233, Dec. 23, 1968. This application June 1, 1971, Ser. No. 148,867

Int. Cl. F02h *33/04*

U.S. Cl. 123—73 AD **16 Claims**



Improved system for supplying fuel and oil to two-cycle internal combustion engines including a simple and reliable fuel-oil injector pump which mixes the fluids in a desired ratio from separate tanks. Means for automatically shutting off fuel flow upon loss of oil are provided. Crankcase scavenging pressure assists oil pumping. The injector pump continuously circulates fuel through the fuel tank to avoid vapor lock. Several arrangements for properly correlating the injector pumping rate with engine air flow are disclosed. An improved injection nozzle utilizing an elastomeric band is disclosed. A system for supplying dual cylinders from the same injector pump is disclosed.

3,707,956

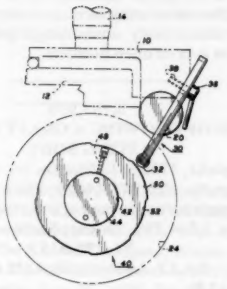
APPARATUS AND METHOD FOR FORMING RELIEF PORTIONS IN THE PERIPHERY OF A GRINDING WHEEL

Henry F. Swenson, 28 Holmehill Lane, Roseland, N.J.

Filed Feb. 19, 1971, Ser. No. 116,806

Int. Cl. B24b *53/08*

U.S. Cl. 125—11 TP **10 Claims**



This invention pertains to the dressing of face-formed grinding wheels and in particular diamond-faced grinding wheels wherein certain face portions may be at an acute angle to a plane normal to the axis of the grinding wheel. To drastically reduce the probability of burning the workpiece while contour grinding a selected portion of this workpiece, apparatus is provided to alter the periphery of the grinding wheel so that determined portions of said periphery of the grinding wheel are relieved. The grinding wheel face so contoured presents a series of face-forming segments by which the workpiece is ground. The dressing apparatus is selectively movable to and from a dressing condition of the periphery of the grinding wheel.

3,707,957

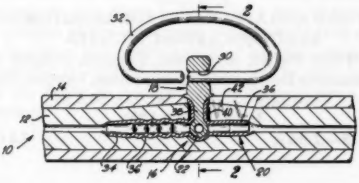
VAS VALVE

Louis Buccio, Holbrook, N.Y., assignor to Investors In Ventures, Inc., New York, N.Y.

Filed Jan. 4, 1971, Ser. No. 103,606

Int. Cl. A61b *19/00*

U.S. Cl. 128—1 R **11 Claims**



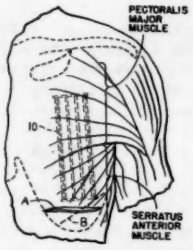
A vas valve adapted to be situated in a human vas deferens for closing and opening the latter. The valve includes an inner component having at one end a bored valve body and having a stem fixed to and extending from the valve body. An outer component houses the valve body of the inner component and part of the stem adjacent thereto, this outer component consisting of integrated molecular layers one of which forms an inner surface of the outer component and fluid-tightly engages and is complementary to an outer surface area of the inner component. The outer component has open-ended tubular extensions extending in opposite directions from the valve body and communicating with the bore thereof when the inner

component is turned with respect to the outer component to an open position. These tubular extensions are adapted to be situated along the tubular interior of a human vas while the stem extends laterally through and beyond the vas wall and terminates in an outer operating end portion enabling the inner component to be turned between closed and opened positions. The size of the valve is small enough for location within a vas without substantially distending the vas while at the same time the hollow interiors of the tubular extensions and bore of the valve body have a diameter large enough to provide for substantially unrestricted flow through the vas when the valve is in its open position.

3,707,958
METHOD OF GROWING A GRAFT MEMBER IN A LIVING BODY

Charles H. Sparks, 3725 S. E. Martins St., Portland, Oreg.

Division of Ser. No. 823,287, May 9, 1969, Pat. No. 3,625,198, which is a continuation-in-part of Ser. No. 655,838, July 25, 1967, Pat. No. 3,514,791. This application Aug. 30, 1971, Ser. No. 175,915
Int. Cl. A61b *19/00*; A61f *1/24*
U.S. Cl. 128—1 R **6 Claims**

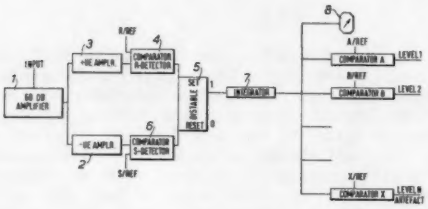


A cluster of tubular tissue dies in a die holder is inserted lengthwise in a stab wound. Each die tube is perforated and contains a cloth tube spaced outward from a central mandrel in the tube. Ingrowth of tissue encapsulates the cloth tube and fills the space between the cloth tube and mandrel forming a graft tube containing the cloth tube as a reinforcing member adjacent its outer surface and remote from the lumen formed by the mandrel. The die cluster containing the graft tubes is removed lengthwise from a second stab wound adjacent one end of the cluster.

3,707,959
METHOD AND APPARATUS FOR MONITORING ELECTROCARDIAC SIGNALS

Colin C. Wilton-Davies, Alverstoke, England, assignor to National Research Development Corporation, London, England

Filed July 13, 1970, Ser. No. 54,550
Int. Cl. A61b *5/04*
U.S. Cl. 128—2.06 A **14 Claims**

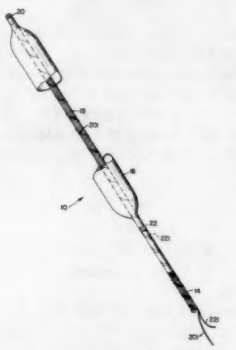


The method and apparatus for monitoring electrocardiac signals to detect the onset of decompression sickness comprising detecting electrocardiac signals comprising cycles of successive functional periods including an RS waveform, comparing said waveform with standard reference voltages to detect R waves by detecting positive peaks in said waveform above a preset level and to detect S waves by detecting negative peaks below a preset level producing from the detected R and S waves a signal proportional to the R-S interval and indicating the RS interval.

3,707,960
BALLOON CARDIAC ASSISTING PUMP HAVING INTRAAORTIC ELECTROCARDIOGRAPHIC ELECTRODES

Paul S. Freed, Brooklyn, N.Y., assignor to The United States of America as represented by the Secretary of the Department of Health

Filed Sept. 3, 1970, Ser. No. 69,191
Int. Cl. A61b *5/04*
U.S. Cl. 128—2.06 E **4 Claims**

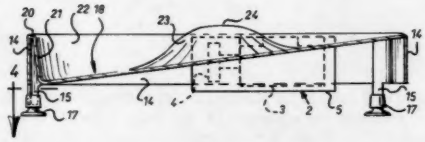


An intra-arterial cardiac assisting pump is provided with intraaortic electrocardiographic electrodes to improve the signal-to-noise ratio of the electrocardiogram and the reliability of trigger signal for phase-shift pumping.

3,707,961
FOOT MASSAGING APPARATUS

Gerard Duplessis, 10, 806 St. Denis Street, Montreal, Quebec, Canada

Filed April 29, 1971, Ser. No. 138,631
Claims priority, application Canada, June 22, 1970, 086,202
Int. Cl. A61h *1/00*
U.S. Cl. 128—33 **8 Claims**



A foot massaging apparatus adapted to receive and massage both feet simultaneously while the user is comfortably seated with his legs extending in a natural inclined position and with his feet spread apart in a natural manner. The apparatus comprises a platform made of rigid material and adapted to rest on the floor, said platform having a top surface and arranged in a plane substantially parallel to the floor and defining a pair of

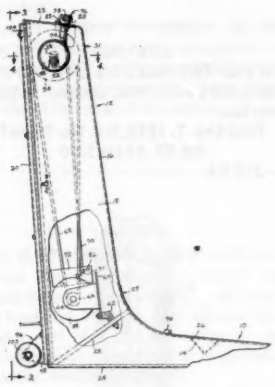
elongated recesses which are deeper at one end than at their other end and have a bottom surface inclined with respect to the floor, each recess adapted to receive the underside of the user's foot, and a vibrator unit comprising an electric motor secured to the platform and having a rotor with an excentric mass to set up low amplitude and high frequency vibrations in the platform.

3,707,962

BELT MASSAGE MACHINE

Dale C. Cosper, South Bend, Ind., assignor to Research Corporation, New York, N.Y.

Filed Sept. 28, 1970, Ser. No. 75,872
Int. Cl. A61h 7/00
U.S. Cl. 128—63 **7 Claims**



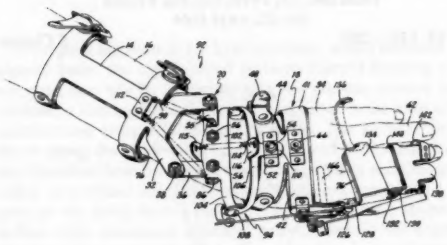
A belt massage machine having a base and an integral upright monocoque constructed support. A belt drive is journaled in the support at the upper end portion thereof. A drive motor is mounted in the support and is positioned below the belt drive. Power transmitting means interconnect the motor and belt drive.

3,707,963

ARTICULATED HAND BRACE

Michael Keropian, 3870 California Street, San Francisco, Calif.

Filed Jan. 21, 1970, Ser. No. 4,646
Int. Cl. A61f 5/10
U.S. Cl. 128—77 **9 Claims**



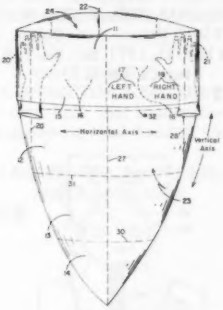
A hand brace secured to a patient's forearm including a support maintaining the patient's hand in an extended position. A connection between the portion of the brace fastened to the forearm and the support permits relative motions between the two along a path approximating the radial and ulnar paths of the patient's hand. A second joint permits relative motions of the hand support in up and down directions in combination with or instead of motions in the radial and ulnar directions. Thumb and finger guides for the patient are movably mounted to the hand support, engage the thumb and fingers of the patient and permit movement of the thumb and fingers towards and away from each other for the grasping and releasing of objects. Means responsive to up and down motions of the hand support move the finger guides.

3,707,964

SURGICAL DRAPE WITH HAND RECEIVING CUFF HAVING INTERNAL STOP GUIDES

Donald Patience, and Robert F. Collins, both of Barrington, Ill., assignors to The Kendall Company, Boston, Mass.

Continuation of Ser. No. 804,596, March 5, 1969, abandoned. This application June 20, 1970, Ser. No. 56,679
Int. Cl. A61f 13/00
U.S. Cl. 128—132 D **9 Claims**



A surgical legging drape having a generally trapezoidal configuration, and provided with an enlarged cuff surrounding the open end thereof, to function as a receiving pocket for the nurse's hands. The drape is folded in a unique manner such that a portion of the cuff covers a substantial area of the top panel. Seal lines provided at specified internal points along the cuff function as internal stop guides for the nurse's hands to permit the drape to bow and droop forward when unfolded and opened.

3,707,965

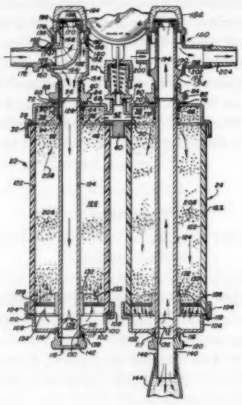
CARBON DIOXIDE ABSORBER APPARATUS

Casimer M. Guzay, 7705 Peterson Avenue, Chicago, Ill.

Continuation-in-part of Ser. No. 843,947, July 23, 1969. This application Oct. 22, 1970, Ser. No. 82,975
Int. Cl. A62b 7/10
U.S. Cl. 128—191 R **12 Claims**

A carbon dioxide absorber apparatus for use in the administration of anesthesia, said apparatus being demountable in its entirety to a plurality of components all sterilizable in demounted condition by use of conventional autoclave equip-

ment, said absorber apparatus having solely internal passageways to define a unidirectional path for the passage of



gases therethrough, with all portions of the path being demountable and accessible for said sterilization.

3,707,966

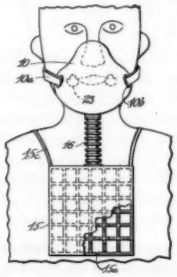
PERSONAL BREATHING MASKS

Joseph A. Nebel, 15630 Dobson Ave., Dolton, Ill.

Filed Feb. 25, 1971, Ser. No. 118,912

Int. Cl. A61m *15/00*

U.S. Cl. 128—212 **3 Claims**



An appliance for warming or treating air for personal breathing. It has an upper face mask and a lower chest pad; and these units are connected by a flexible conduit. The chest pad is of cellular construction opening in the direction of the wearer's body to receive heat from the same; and the face mask has inlet and outlet valves activated by inhalation and exhalation to draw warmed air from the chest pad and expel it from the face mask. The chest pad may be filled with a porous substance which filters atmospheric air or lends it a medicated content beneficial for respiratory ailments.

3,707,967

STEADY FLOW REGENERATIVE PERITONEAL DIALYSIS SYSTEM AND METHOD

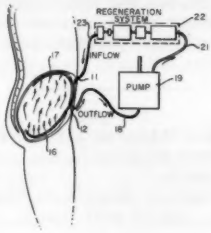
Sotiris Kitrilakis, Berkeley, and Thomas Charles Robinson, El Cerrito, both of Calif., assignors to Tecna Corporation, Berkeley, Calif.

Filed Oct. 1, 1970, Ser. No. 77,240

Int. Cl. A61m *5/00*

U.S. Cl. 128—213 **9 Claims**

A steady-flow regenerative peritoneal dialysis system and method making use of permanent percutaneous tubes extending into the abdominal cavity and means for circulating a di-



alysate through the abdominal cavity and reconstituting the dialysate.

3,707,968

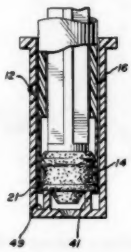
ARMING CAP FOR BREECH LOADED SYRINGE

Elmer A. Koenig, Kirkwood, Mo., assignor to Sherwood Medical Industries Inc.

Filed Oct. 7, 1970, Ser. No. 78,767

Int. Cl. A61m *5/00*

U.S. Cl. 128—218 PA **6 Claims**



An arming cap for loading a resilient piston within a cylindrical part of a hypodermic syringe including a generally cylindrical member open at one end and having a diameter sufficient to loosely receive both the resilient piston and the cylindrical syringe part into which it is to be inserted, there being provided an annular projection at the closed end of the cap to arrest movement of the resilient piston so that the cylindrical syringe part may slide within the arming cap over the resilient piston to compress and encapsulate the same.

3,707,969

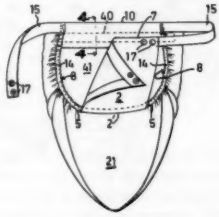
INCONTINENCE DEVICE

Mable M. Sanford, 473 Noe Street, San Francisco, Calif.

Filed Dec. 14, 1970, Ser. No. 97,558

Int. Cl. A61f *5/44*

U.S. Cl. 128—287 **5 Claims**



An incontinence device formed from an elongated sheet of flexible, planar, waterproof material having a front panel, an

intermediate panel, and a rear panel. The front panel is formed to extend over the pubic area between the furrows of the groin, and the rear panel is formed to extend partially over the buttocks, while the intermediate panel is formed to extend from the front panel, between the legs, to the rear panel and to form a receptacle for moisture absorbent material and to receive the genital organs. The sheet is gathered to an elastic strip along its edges that extend between the front panel and rear panel to provide yieldable expansion.

The intermediate panel is folded along lines extending generally longitudinally of the sheet in a direction away from the front panel to provide pleat-like walls that are expandable tranversely of the sheet for the genital organs and moisture absorbent material, and a relatively wide transversely extending pleat extending between the side edges of the intermediate panel provides a pair of opposed walls defining opposite sides of a forwardly opening recess to receive and restrict rearward flow of moisture within the forward portion of the receptacle toward the rear panel.

The front panel is held in position by elastic bands releasably secured thereto and to the rear panel, to releasably hold the device in position, and to permit forward dropping of the panel to remove moisture laden material and to enable replacement without removal of the device.

3,707,970

SURGICAL INSTRUMENT FOR HYSTERECTOMY

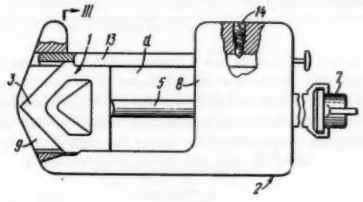
Boris Andreevich Smirnov, Moscow; Emilia Ivanovna Axenova, Kaliningrad Moskovskoi oblasti; Vladimir Leonidovich Rychkov, Moscow, and Nikolai Dmitrievich Lukichev, Reutov, all of U.S.S.R., assignors to Vseojuzny Nauchno-Issiedovatelsky Institut Khirurgicheskoi Appratury i Instrumentov, Moscow, U.S.S.R.

Filed May 4, 1971, Ser. No. 140,204

Claims priority, application U.S.S.R., May 4, 1970, 1431407

Int. Cl. A61b *17/32*; B25f *3/00*; B26b *13/00*

U.S. Cl. 128—305 2 Claims



A surgical instrument for hysterectomy, which includes a C-shaped body, the cantilevered sections thereof forming a gap open on one side to accommodate the uterine portion being excised, a locking bar adapted to interact with the ends of the cantilevered body sections, and a knife. The knife is free to move along the guide slots of the body and the locking bar in the direction from one of the cantilevered body sections to the other, one of said cantilevered body sections serving as a support for the knife during cutting. The knife has the shape of a hollow right truncated trihedral prism, wherein the edges of the faces that overlook the knife-supporting body section are cutting edges adapted to interact with the correspondingly-shaped faces of said supporting section. One of the knife faces is lanceolate in shape when viewed from above, its pointed end being advanced with respect to the cutting edges of other two knife faces.

3,707,971

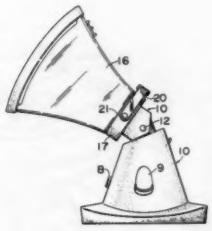
FACE STEAMER

Hiroshi Yamamoto, Suita, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Oct. 18, 1971, Ser. No. 190,396

Int. Cl. A61h *33/00*

U.S. Cl. 128—368 3 Claims



A face steamer which applies steam to the skin to open pores of the skin, so as thereby to remove foreign matters and simultaneously encourage metabolism and further to enhance the effect of a skin treatment or make-up. A hood to be applied to the hand, face or other portion of the body for confining steam therein and a main body having a stream generator disposed therein are fabricated in similar shapes, so that the former may be put over the latter to render the face steamer compact in shape when said face steamer is not in use.

3,707,972

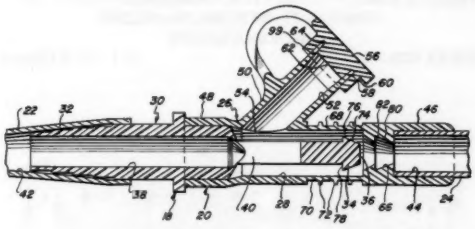
IRRIGATION CONNECTOR WITH SHUT-OFF VALVE

Frank K. Villari, Oak Park, and Bhupendra C. Patel, Elgin, both of Ill., assignors to The Kendall Company, Boston, Mass.

Filed July 28, 1971, Ser. No. 166,877

Int. Cl. A61n *25/00*

U.S. Cl. 128—349 R 10 Claims

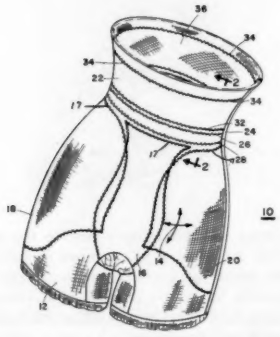


An irrigation connector for a liquid drainage system including, a flexible body member having a longitudinal main channel which communicates with a drainage tube through one end of the body member and with a catheter through the other end. The body member includes a side arm having a channel which opens into the main channel, a flexible bellows intermediate the body member ends, and a valve seat intermediate the side arm opening and the one body member end. A stem is received in the main channel and has a passageway extending from one end of the stem to an opening in the stem intermediate the one stem end and a plug adjacent the other end of the stem. The one body member end is movable between an outer position with the bellows extended and the plug spaced from the seat to permit liquid drainage from the catheter to the drainage tube, and an inner position with the bellows flexed and the plug sealingly engaged against the seat to prevent drainage of liquid.

3,707,973
HIGH-WAISTED GIRDLE

David Peter Welsch, Livingston, N.J., and Harry Yannes, Allentown, Pa., assignors to Cupid Foundations, Inc., New York, N.Y.

Filed March 9, 1972, Ser. No. 233,205
Int. Cl. A41c *1/00*
U.S. Cl. 128—533 8 Claims

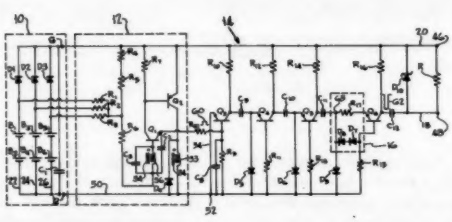


A high-waisted girdle is disclosed which includes a body encircling region terminating at an upper end thereof in a high-waist portion which extends above the waistline location; a first band of material having a predetermined modulus of elasticity, with said band being secured to said body encircling region at the waistline location; and a second band of material having a predetermined modulus of elasticity, with said second band being secured to said high-waist portion and spaced slightly from said first band of material.

3,707,974
BODY ORGAN STIMULATOR WITH VOLTAGE CONVERTER

William J. Raddi, P.O. Box 8109, Philadelphia, Pa.

Filed Dec. 11, 1970, Ser. No. 97,255
Int. Cl. A61n *1/36*
U.S. Cl. 128—419 P 6 Claims



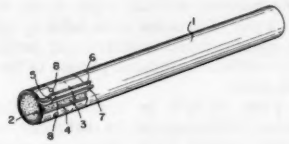
An organ stimulator is provided having a power supply, a pulse generating circuit, a voltage converter and output terminals. The voltage converter includes at least one capacitor which is arranged such that, during the interpulse interval between pulses from the pulse generator, the capacitor charges to approximately the voltage of the power supply and upon application of a pulse to the voltage converter, the combined voltages of the power supply and the charged capacitor are supplied to the output terminals.

A novel current limiting circuit is also provided which regulates the output pulse current of the pacer.

3,707,975
FILTER CIGARETTE HAVING APERTURED BAND

Alfred Charles Davis, Bristol, England, assignor to Imperial Tobacco Group Limited, Bristol, England

Division of Ser. No. 686,482, Nov. 29, 1969, Pat. No. 3,590,825, which is a continuation-in-part of Ser. No. 435,004, Feb. 24, 1965, Pat. No. 3,410,274. This application March 22, 1971, Ser. No. 126,721
Claims priority, application Great Britain, Dec. 9, 1966, 553,688/66. The portion of the term of this patent subsequent to Nov. 12, 1985, has been disclaimed.
Int. Cl. A24d *01/02, 01/04*
U.S. Cl. 131—9 2 Claims

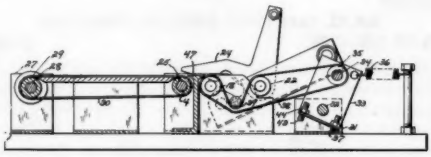


A cigarette is disclosed having a wrapped tobacco portion and a two section stub secured to it by a band of impermeable material. Beneath the impermeable band, a band of highly permeable material is disposed. The impermeable band is provided with at least one opening adjustably located over the butt joint between the two sections of the stub whereby the amount of air passing into the butt may be controlled.

3,707,976
CIGAR MAKING MACHINE

Anton Van Veen, Morgan Road, RFD, Canton Center, Conn.

Filed Dec. 16, 1970, Ser. No. 98,548
Int. Cl. A24c *1/30, 5/08*
U.S. Cl. 131—36 4 Claims

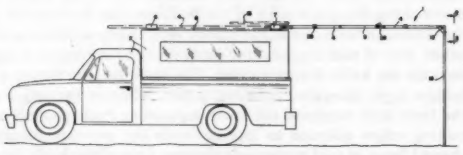


The invention comprises a cigar making machine including two belts with means for driving same at different speeds; the slower, to feed the wrapper to the filler or bunch, and the other to roll the filler, or bunch and wrapper, plus means for stretching the wrapper and for sizing the cigar.

3,707,977
AUTOMOTIVE TENT FRAMEWORK AND COVERING THEREFOR

Clarence A. Grady, Route 1, Box 192, Rockaway, Oreg.

Filed May 6, 1971, Ser. No. 140,877
Int. Cl. A45f *1/00, 1/16*
U.S. Cl. 135—1 A 7 Claims



A tent framework for use in conjunction with a vehicle and including a pair of frame assemblies mounted lengthwise on

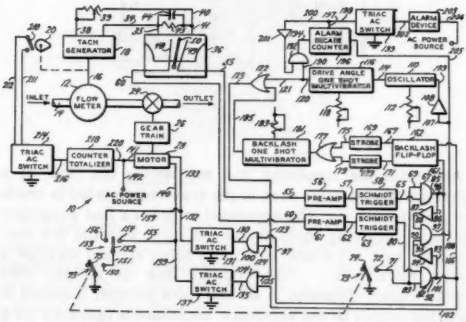
opposite sides of the vehicle roof structure. Said assemblies being rearwardly extensible to permit pivotally attached leg and crossmembers to be swung outwardly into perpendicular disposed relationship to the main longitudinal member of each frame assembly. Plates affixed to the rearward ends of the main members hingedly attach the leg and crossmembers to the main member with the adjacent ends of the leg and crossmembers in abutting, interlocking relationship. A covering for the framework may be compactly stowed in place on the framework.

3,707,978

AUTOMATIC CONTROL AND ANTIBACKLASH SYSTEM

Joseph A. Volk, Jr., Florissant, Mo., assignor to Beta Corporation of St. Louis, Mo.

Filed Sept. 24, 1971, Ser. No. 183,429
Int. Cl. F16k *31/12*
U.S. Cl. 137—2 **19 Claims**



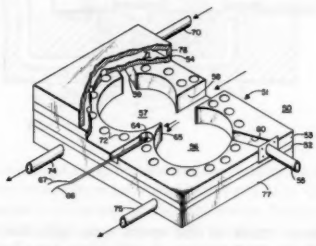
This invention relates to a system for controlling the rate of fluid flow within close tolerances while providing correction for backlash and includes mechanical means for controlling the rate of fluid flow, means for indicating the rate of fluid flow relative to prescribed limits, means for increasing the rate of fluid flow when the rate drops below the lower limit, and means for decreasing the rate of fluid flow when the rate goes above the upper limit. An antibacklash network is provided for removing slack or backlash in the mechanical control means whenever it, in making a correction, is made to operate in a reverse direction. The system further includes means for signalling malfunctions in the fluid system and for measuring the quantity of fluid flowing through the system.

3,707,979

COOLED TEMPERATURE SENSITIVE OSCILLATOR

Edward G. Zoerb, Roseville, Minn., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Feb. 28, 1969, Ser. No. 803,482
Int. Cl. F15c *1/08*
U.S. Cl. 137—81.5 **7 Claims**



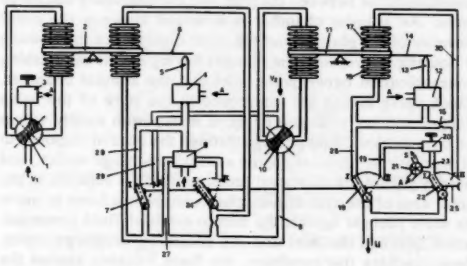
A temperature sensor of the fluidic oscillator type wherein the oscillator housing is cooled to permit the measurement of temperature exceeding the melting temperature of the housing.

3,707,980

DUAL REGULATOR PNEUMATIC CONTROL SYSTEM HAVING AUTOMATIC ALIGNMENT MEANS FOR CASCADE AND MANUAL OPERATION

Giorgio Bergamini, Bari, Italy, assignor to Pignone Sud S.p.A, Bari, Italy

Filed Nov. 6, 1970, Ser. No. 87,498
Claims priority, application Italy, Nov. 8, 1969, 62099 A/69
Int. Cl. G05d *16/00*
U.S. Cl. 137—84 **12 Claims**



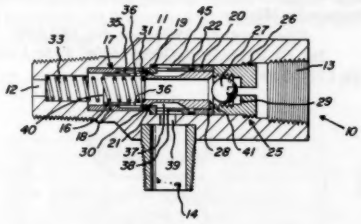
A system is described for connecting two force equilibrium pneumatic balance regulators, adapted to be actuated by a pair of variables, so that those regulators can be operated in cascade or manually and the operation can be readily changed at will from cascade to manual, and vice versa, without causing jumps in the output pressure of the system; whereby, during manual operation, the output of an amplifier-relay of the primary regulation is utilized as a set value for the secondary regulator whereas, during manual operation, a secondary variable is used as set value for the secondary regulator, and the manual outlet of the two cascade regulators is connected directly tc the positive reaction of the secondary regulator.

3,707,981

COMPENSATING UNLOADER VALVE

Harry J. Sadler, St. Paul; Ramon Pareja, and John Leschisin, both of Minneapolis, all of Minn., assignors to Lear Siegler, Inc., Maple Heights, Ohio

Filed Sept. 8, 1971, Ser. No. 178,625
Int. Cl. F16k *17/04*
U.S. Cl. 137—115 **11 Claims**



An unloader valve apparatus arranged for compensating for variations in pressure and capacity, and comprising, in combination, a valve housing having an inlet, a first outlet defining a normal discharge, and a second outlet arranged between the inlet and the normal discharge and defining an unloading discharge outlet. The housing is provided with a bore for receiving a valve plunger or an intermediate sealing liner or sleeve which itself receives the plunger, with the valve plunger having a bore extending therethrough to permit fluid communication between the inlet and the normal discharge. Circumferential sealing means including an outer seal along the

periphery of the plunger and mating sealing means along the inner periphery of the housing are provided, with the plunger being adapted for reciprocatory sliding movement within the housing. The plunger is provided with a working area differential for plunger motion, including a certain first annular area disposed in opposed relationship to the inlet port and a certain second and larger annular area disposed in opposed relationship to the outlet port, with the plunger being normally resiliently biased toward the outlet port to establish communication between the inlet and the normal outlet discharge, and with the circumferential sealing means normally blocking communication between the inlet and the unloading discharge outlet. An annular chamber is arranged between the outer diameter of the plunger and the inner diameter of the housing or housing sleeve, with the plunger having means establishing communication between the inlet and the annular chamber. Check valve means are interposed in the bore of the valve plunger and are arranged to move or function axially within the bore to block fluid passage through the bore in response to an increase in pressure in the normal discharge outlet, and thereby permit the increased pressure which is exposed to the larger area of the area differential to establish a force to move the valve plunger against the bias to establish fluid communication between the inlet and the unloading discharge outlet. Upon reaching this condition, the force working against the inlet side or area of the plunger falls substantially, the check valve closes, and the entire area of the outlet side of the plunger is exposed to the outlet pressure. This combination of conditions acts to snap the plunger into the unloading position.

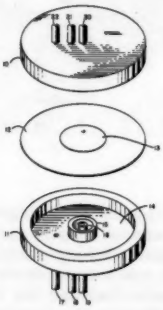
The circumferential sealing means includes an axially elongated peripheral seal surface extending between the outer surface of the plunger and the inner surface of the valve housing, with the sealing means being disposed between the annular reservoir chamber and the unloading discharge port while the plunger is in its normal disposition. The circumferential seal means is arranged to provide a continuation of sealing along the axially elongated peripheral seal surface while the plunger moves or floats axially for a substantial distance to an intermediate or floating sealing position away from the normal position and toward the unloading position against the resilient bias and in response to normal variations in fluid pressure existing in the discharge outlet, due to normal manufacturing tolerances in the pump, and in the resilient valve spring force.

3,707,982

SNAP ACTION PNEUMATIC RELAY

Joseph E. Hogel, River Grove, Ill., assignor to Honeywell, Inc., Minneapolis, Minn.

Filed Sept. 23, 1971, Ser. No. 182,995
Int. Cl. F15b *5/00*; G05d *16/06*; F15c *3/04*
U.S. Cl. 137—119 **10 Claims**



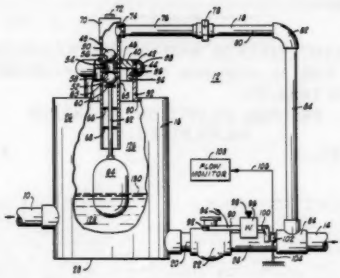
A miniature pneumatic snap action relay having a bistable snap disc arranged to interconnect first and second sets of two ports when in one stable position and to interconnect third and fourth sets of two ports when in the other stable position.

3,707,983

LIQUID FLOW MONITORING

Wilbur T. Butler, P.O. Box 535, Pond Creek, Okla.

Filed Jan. 11, 1971, Ser. No. 105,533
Int. Cl. F16k *45/00*
U.S. Cl. 137—173 **7 Claims**



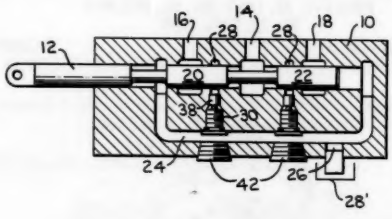
Apparatus for regulating and monitoring the flow of a liquid/gas fluid mixture such as the type encountered in crude petroleum recovery. The apparatus includes a first expansion enclosure receiving liquid and/or gas input with the first output from said expansion enclosure being applied through a biased valve which allows output flow at greater than predetermined pressures. A second valve member disposed in a second output of the expansion enclosure is operated via a float to close at a predetermined liquid level within said expansion enclosure and to open below such level thereby to allow by-pass flow of gas substance from said second output for later addition to the first output. Flow monitor means responsive to the position of said first valve means provides a flow time indication and/or output record.

3,707,984

HYDRAULIC VALVE WITH LEAKAGE CONTROL

Clarence W. Bantz, Aurora, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Continuation of Ser. No. 873,172, Nov. 3, 1969, abandoned.
This application Sept. 2, 1971, Ser. No. 177,496
Int. Cl. F16k *11/07*
U.S. Cl. 137—312 **7 Claims**

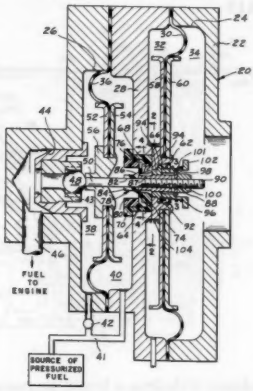


A hydraulic valve of the spool type with means to trap hydraulic fluid which tends to leak between the spool and the bore of the valve in which it slides and to bypass said fluid to atmosphere or a tank in order to prevent it from flowing past the spool to actuate a hydraulic motor causing it to move or creep when it should be at rest.

3,707,985
DIAPHRAGM TYPE FLUID SEAL

Elmer A. Haase, and James M. Kirwin, both of South Bend, Ind., assignors to The Bendix Corp., South Bend, Ind.

Division of Ser. No. 828,178, May 27, 1969, Pat. No. 3,587,408. This application Jan. 22, 1971, Ser. No. 109,047
Int. Cl. F16k *31/12, 31/36*
U.S. Cl. 137—495 4 Claims

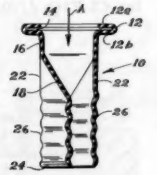


A diaphragm-type fluid seal adapted for use with a push rod exposed to pressurized air and liquid fluids. A flexible diaphragm fixedly mounted at its radially outermost portion is provided with a central opening through which the push rod extends providing frictional engagement and thus a fluid seal between contacting surfaces of the diaphragm and rod thereby isolating the pressurized air and liquid. The diaphragm is flexible to the extent of axial movement of the rod to avoid relative movement between the diaphragm and rod in response to rod movement. An adjustable member threadedly carried by the rod and engageable with the centermost portion of the diaphragm provides a way of easily and accurately positioning the diaphragm relative to the rod to eliminate undesirable spring rate effect of the diaphragm on the rod.

3,707,986
ONE-WAY DIAPHRAGM SEAL FOR DRAINS

William J. Breen, 427 Willis Avenue, Williston Park, N.Y.

Filed Feb. 19, 1971, Ser. No. 116,854
Int. Cl. F16k *15/00*
U.S. Cl. 137—525.1 2 Claims

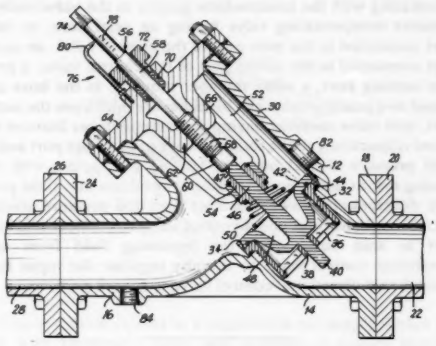


A one-way diaphragm for use in combination with the drain of a sink, for example, is provided with a plurality of axially extending, radially oriented, double thickness flanges which are corrugated throughout substantially their entire length. The lower end of each of the flanges is split whereby water draining from the sink can flow therethrough. The diaphragm is made of resilient material so that the flanges are normally closed and provide a seal at their lower end to prevent backflow of any gases, fluids and foams into the sink.

3,707,987
ADJUSTABLE VALVE ASSEMBLY

Robert E. Gordon, Brooklyn, N.Y., assignor to Mueller Steam Specialty Division SOS Consolidated, Brooklyn, N.Y.

Filed Aug. 3, 1970, Ser. No. 60,679
Int. Cl. F16k *15/18*
U.S. Cl. 137—543 3 Claims

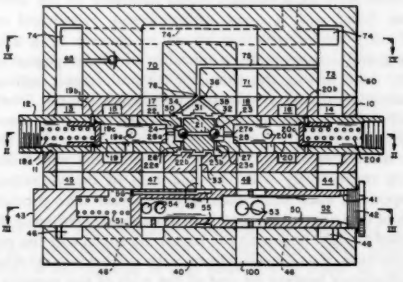


A valve capable of being adjusted so that it can function as a check valve, a throttle valve, or a shut-off valve. A valve housing has an upstream tubular inlet and a downstream tubular outlet coaxial with the inlet to provide a straight-line flow for fluid. Between the inlet and outlet the housing carries a valve seat having an annular seating surface, and a valve member extends across the valve seat and has a closure surface which engages the seating surface when the valve member is in a closed position. A spring continuously urges the valve member toward its closed position so that the function of a check valve is achieved. A shut-off member can be placed in a position maintaining the valve in its closed position, to achieve the effect of a shut-off valve, while an adjusting structure coacts with the shut-off member to adjust the extent to which the valve member can move before engaging the shut-off member so as to achieve in this way the operation of a throttle valve.

3,707,988
CONTROL VALVES

Robert F. Hodgson, Youngstown, Ohio, assignor to Commercial Shearing and Stamping Co., Youngstown, Ohio

Filed Sept. 24, 1971, Ser. No. 183,535
Int. Cl. F16k *11/10*
U.S. Cl. 137—596.12 5 Claims



A pressure compensated directional control valve capable of supplying a constant volume of fluid is provided having a directional control valve with inlet and outlet ports and first

and second motor ports for connection to opposite sides of a fluid motor, a longitudinal bore in said control valve, a valve member movable in said bore, said valve member being hollow at each end forming spaced chambers selectively communicating with one another and through the valve member walls with the inlet ports, outlet ports and work ports and with a pair of spaced grooves surrounding the valve member, three spaced annular grooves in the valve walls communicating with the grooves in the valve member, a pressure sensing port communicating with the intermediate groove in the valve walls, a pressure compensating valve having an axial bore, an inlet port connected to the inlet port of the control valve, an outlet port connected to the outlet port of the control valve, a pressure sensing port, a valve member movable in the bore and biased to a position normally blocking the inlet from the outlet port, said valve member having opposite surfaces thereon exposed respectively to the fluid pressure at said inlet port and to fluid pressure at said pressure sensing port acting with the biasing means and being movable in response to a fluid pressure differential between its inlet port and pressure sensing port through the directional control valve to connect said inlet port to said outlet port for bypassing fluid from said directional control valve to thereby regulate the input flow through said directional control valve to a work port.

3,707,989

MODULAR SYSTEM FOR PNEUMATIC CONTROL

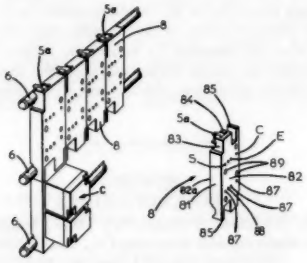
Jean Jullien-Davin, Valence, France, assignor to Crouzet, Paris, France

Filed Dec. 22, 1970, Ser. No. 100,720

Claims priority, application France, Dec. 22, 1969, 6944770

Int. Cl. F16k 11/02

U.S. Cl. 137—608 **8 Claims**



A modular system for pneumatic control of the type which is constituted by a support panel arranged in the form of a frame fitted with a series of transverse cylindrical rods in uniformly spaced relation so as to receive in a coplanar orthogonal arrangement, a plurality of interengageable base plates each having the shape of a standardized right-angled parallelepiped and is adapted to receive on the front face which forms a unitary mounting surface at least one standardized pneumatic component of the system and on the rear face thereof at least one series of connectors which communicate respectively with the openings of the corresponding component, each base plate having a rear face provided on each of two opposite edges, in symmetrical relation to the axis located at right angles to the mounting surface at the point of intersection of its diagonal lines, with at least two members for simultaneous bearing on one of the rods of the support panel and with a member for attachment on the rod, with all of said members being spaced along the edge face in order that the bearing members of two juxtaposed base plates can be similarly mounted astride the same rod.

3,707,990

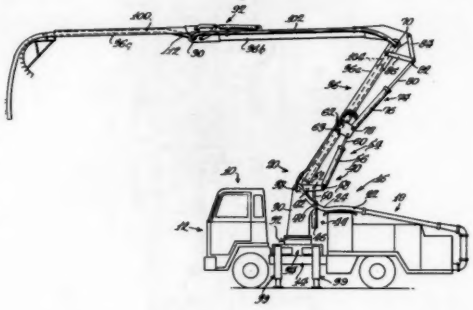
CONCRETE PLACEMENT APPARATUS

Aaron M. Schaible, deceased, late of Rochester, Wis.; James F. Bremer, special administrator, Waterford, Wis.; Bernard G. Braun, Waterford, Wis.; Wilbur G. Bennett, Terre Haute, and Richard L. Brown, Terre Haute, both of Ind., assignors to J. I. Case Company, Racine, Wis.

Filed Jan. 11, 1971, Ser. No. 105,266

Int. Cl. B67d 5/36, 5/60, 5/64

U.S. Cl. 137—615 **22 Claims**



A concrete placer including a boom supported for pivotal movement on a horizontal pivot axis of a base with powered linkage means for pivoting the boom on the base. The powered linkage means includes a link having one end pivoted on the horizontal axis through a fluid motor interposed between the base and the link. A second fluid ram is pivotally connected to the link and the boom and the powered linkage means is arranged so that the boom can be pivoted about 180° about the horizontal pivot axis.

The boom is of the articulated type having a plurality of sections with each adjacent pairs of sections being pivotally interconnected and having cooperating powered linkage means for pivoting adjacent pairs of sections from an overlapping relation to a substantially end-to-end relation.

The boom sections support concrete transmission means which includes a conduit for each of the boom sections with the adjacent ends of the respective conduits interconnected by end pieces having a portion located on the pivot axis for the respective sections which accommodates pivotal movement of the sections.

3,707,991

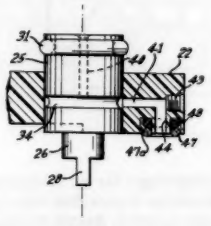
REMOTE CONTROLLED VALVE FOR IRRIGATION SYSTEMS

Jonas M. Shapiro, 177 Saw Mill Road, Stamford, Conn.

Filed April 12, 1971, Ser. No. 133,028

Int. Cl. F16k 11/02

U.S. Cl. 137—625.11 **5 Claims**



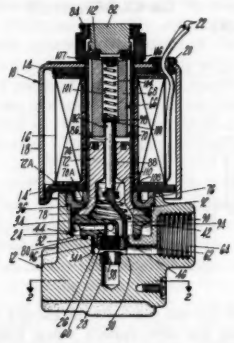
A rotatable valve member of Delrin plastic material is coaxially positioned in the main housing portion of a housing of Delrin plastic material and is adapted to be rotated about its axis to connect an inlet port to each of a plurality of outlet ports in a selected sequence.

3,707,992

ELECTROMAGNETIC VALVE ASSEMBLY

John E. Ellison, Newington, and Herbert M. Flink, East Hartford, both of Conn., assignors to Skinner Precision Industries, Inc., New Britain, Conn.

Filed Nov. 9, 1970, Ser. No. 87,679
Int. Cl. F06k
U.S. Cl. 137—625.65 16 Claims



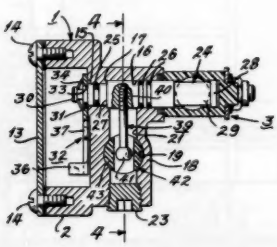
An all ports in body valve assembly wherein a reciprocable solenoid armature is received within a guide sleeve mounted on a body and a spring is drivingly connected between the armature and a rod carrying a valve member for sealing engagement with a valve seat in an arrangement wherein both the guide sleeve and valve member are isolated from armature impact forces upon energization. The valve seat is formed in an insert fitted in the body, and the insert provides fluid passages for communicating with ports formed in the body. An illustrative embodiment of the rod includes a terminal portion radially offset relative to the axis of movement of the armature and to the valve seat providing a valve assembly particularly suited for a three-way valve featuring an all ports in body construction.

3,707,993

HEIGHT CONTROL VALVE

David R. Hardwick, St. Louis, Mo., assignor to Wagner Electric Corporation

Filed March 15, 1971, Ser. No. 124,286
Int. Cl. F16k *11/07*; B60t *13/16*
U.S. Cl. 137—636 7 Claims



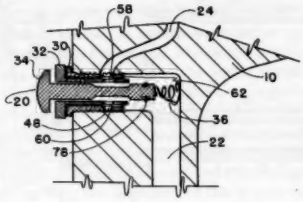
A height control valve for use in a vehicle air suspension system is provided with an oscillatable member for actuating valve means to control the ingress and egress of fluid pressure in said system and also with a damping mechanism for providing a time delay in the operation of said valve means by said oscillatable member.

3,707,994

REGULATABLE TRIGGERS FOR PNEUMATIC DEVICES

James L. Brown, 106 Carriage Square Drive, St. Louis County, Mo.

Filed Dec. 7, 1970, Ser. No. 95,611
Int. Cl. F16k *1/00*
U.S. Cl. 137—637.4 2 Claims



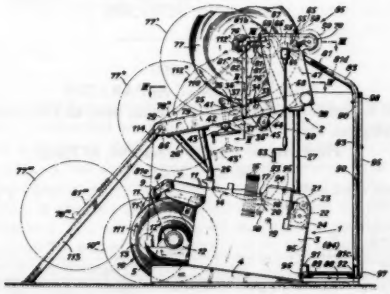
This invention relates to a regulatable air supply device for use with pneumatic tools and provides a trigger slidably mounted in a sleeve which is rotatably mounted within a shell, the sleeve being provided with at least one bore which may be overlapped in varying degrees with a complementary bore in the shell by manual rotation of the sleeve within the shell, whereby to vary selectively the size of the orifice formed by the overlapping bores.

3,707,995

WEAVING MACHINE

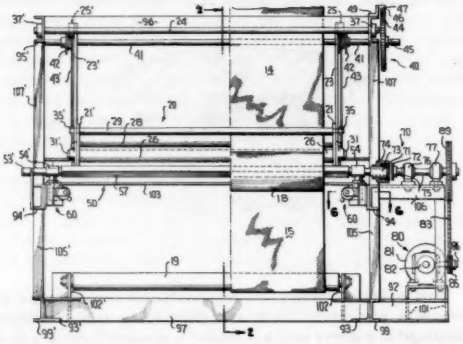
Erwin Pfarrwaller, Winterthur, Switzerland, assignor to Sulzer Brothers Ltd., Winterthur, Switzerland

Filed April 5, 1971, Ser. No. 131,119
Claims priority, application Switzerland, April 9, 1970, 5239/70
Int. Cl. D03d *49/00, 49/02, 49/20*
U.S. Cl. 139—1 15 Claims



The weaving machine is provided with a supporting structure above the machine base on which the cloth beam is mounted. A mechanism is also provided to allow an empty cloth beam to be rolled up onto the supporting structure or a full cloth beam to be rolled off the supporting structure. The cloth is drawn off the cloth end of the machine base and guided about an access passageway upwardly to the supporting structure for winding onto the cloth beam.

3,707,996
TAKE-UP DEVICE HAVING A TENSION-DERIVED COMPACTING MEANS
Donald Dane Zebley, Greenville, S.C., and Joseph Wayne Cashion, Statesville, N.C., assignors to United Merchants and Manufacturers, Inc., New York, N.Y.
Filed April 22, 1971, Ser. No. 136,474
Int. Cl. D03d *49/20*
U.S. Cl. 139—304 **20 Claims**

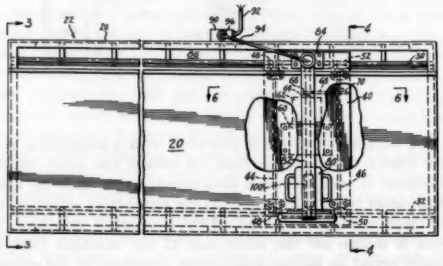


A take-up device for winding continuously woven cloth upon a take-up roll to form hard, straight-ended rolls without pick line distortion. A pivotably supported S-wrap assembly rests tiltably upon the take-up roll. Its swing axis is parallel to an input roll, around which the incoming cloth travels at the same speed as the loom let-off, and to the take-up roll. A tensional pressure plane passes through the swing axis and inwardly of the center line of the S-wrap assembly. The cloth moves reversibly through the S-wrap assembly and onto the take-up roll. When a selected tension torque, in addition to the winding torque, is applied to the take-up roll shaft, the cloth is tautened, the S-wrap assembly is pulled toward planar relationship with the cloth and the tensional pressure plane, and a tension-derived pressure is created. This pressure acts inwardly upon the take-up roll to compact the cloth wound thereupon and increases with the increasing diameter of the wound cloth upon the take-up roll.

ERRATUM

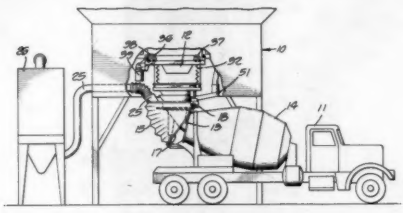
For Class 141—93 see:
Patent No. 3,707,998

3,707,997
SAW CARRIAGE APPARATUS
Jewell S. Baldwin, and Hazel Baldwin, both of P.O. Box 183, Lexington, Mo.
Filed March 23, 1971, Ser. No. 127,248
Int. Cl. B27b *5/18*
U.S. Cl. 83—483 **2 Claims**



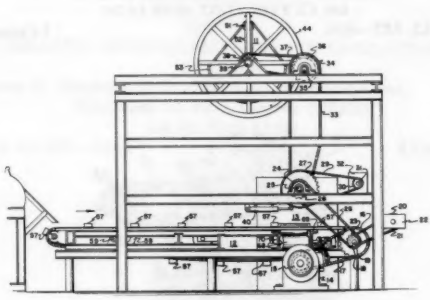
A raised platform with longitudinal rails, a wheeled carriage mounted on the rails, and motors mounted to the carriage for moving the carriage relative to the rails and for actuating a saw blade above the carriage.

3,707,998
DUST COLLECTOR SHROUD
Jerry C. Dalrymple, 5192 Princeton, Westminister, Calif.
Filed June 28, 1971, Ser. No. 157,188
Int. Cl. B65g *69/18*
U.S. Cl. 141—93 **7 Claims**



A collapsible shroud prevents the escape of cement dust or other dust into the atmosphere when filling a transit mix concrete truck from a batch plant loading station. The shroud is raised to provide clearance for positioning the truck and its filler member relative to the discharge chute of the batch plant. The shroud is made of accordion-pleated material, and is movable about a pivot to encompass and loosely enclose the exposed portion of the truck filler member. A suction tube extends into the interior of the shroud for removing dust generated during gravity discharge of materials from the discharge chute into the filler member. The shroud may contain small apertures for air entry to prevent buildup of dust on the inner walls of the shroud.

3,707,999
MOVING SHADOW LIGHT INDEXING MEANS
Jesse C. Coats, P.O. Box 167, Horse Shoe Bend, Idaho
Filed Jan. 25, 1971, Ser. No. 109,407
Int. Cl. B27b *27/10*
U.S. Cl. 83—438 **6 Claims**



The present invention comprises a rotating drum assembly mounted on a framework above a conveyor assembly disposed transversely to the drum, a cross conveyor in the conveyor assembly operable to drivingly feed lumber into a saw assembly. The rotating drum assembly is provided with a multiplicity of groups of wires suitably fastened to the opposite terminal end plates of the drum and a light projecting source suitably mounted in the drum being operable to project light through unit groups of wires passing under the light projecting source in response to rotation of the drum and to project shadow imp-

ages of the wires upon lumber traveling on the conveyor therebeneath. The drum assembly also includes a parallax guide suitably fixed inside the rotating drum assembly operable to planarly orient unit groups of wires on the drum as they are caused to pass over the guide in response to rotation of the drum. The wires of each of the unit groups are parallelly spaced apart on the drum a distance geometrically coincident with the spacing of parallel mounted saw blades in the saw assembly. Each unit group of wires on the drum are spaced apart a distance geometrically coincident with the spacing of lumber guide bars on the conveyor assembly. Adjusting means is provided on the drum assembly to interrupt the synchronous drive of the drum operable to selectively align shadow impages on a selected piece of lumber being carried by a respective guide bar on the conveyor. The adjusting means is electrically interconnected to the saw assembly to selectively align saw blades coincident with the shadow line images on the lumber.

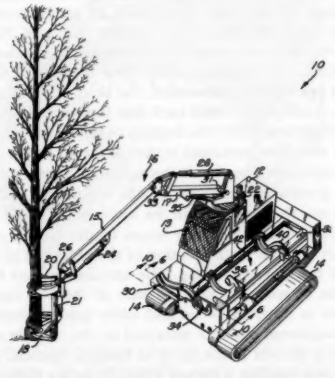
The conveyor assembly comprises an endless conveyor disposed about a table framework and including a multiplicity of equally spaced guide bars disposed transversely to the direction of travel of the conveyor. Means are provided on the table to urge lumber on the table against respective guide bars. A cross conveyor is distally disposed near one of the terminal ends of the conveyor being operable to drivingly feed lumber into the saw assembly. Driving rollers in the cross conveyor are disposed at an angle between a pair of opposing side frame members. In this manner lumber tends to be drivingly fed into the saw assembly and urged against one of the side frame members. Lumber is drivingly fed into the saw assembly from a preselected fixed datum reference guide formed by the side frame member. Hence, the relationship between the datum reference guide and the preselected position of saws in the saw assembly is the same as the relationship of projected shadow images on the lumber and its position against the respective guide bar on the conveyor assembly. Means are provided on the conveyor table to selectively support lumber above the cross conveyor and to planarly drop the lumber flatly onto the cross conveyor. Electrically interconnecting control means are also provided to selectively lower individual saw blades into engagement with respective pieces of lumber.

3,708,000

METHOD AND APPARATUS FOR HARVESTING TREES

Bryan Duffty; Theodore B. Golob; Stanley C. Jasinski, and Jack Zwart, all of Woodstock, Ontario, Canada, assignors to Eaton Yale & Towne Canada Ltd., London, Ontario, Canada

Filed Dec. 7, 1970, Ser. No. 95,592
Claims priority, application Canada, Oct. 14, 1970, 95528
Int. Cl. A01g *23/02*
U.S. Cl. 144—3 D **46 Claims**



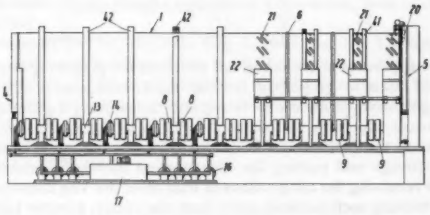
A tree harvester includes a tree-processing apparatus for delimbing and cutting a tree into bolts of a predetermined length. The processing apparatus includes a delimbing mechanism, a cutting mechanism, and a clamping mechanism. The delimbing mechanism is operable to delimb the tree upon relative movement between the tree and the delimbing mechanism. The clamping mechanism is operable to engage the tree and pull the tree through the delimbing mechanism to thereby effect delimbing of the tree. The cutting mechanism is located between the clamping mechanism and the delimbing mechanism and is operable to cut the tree into bolts of a predetermined length after the tree has been delimbed and the bolts are then deposited in a bunk mechanism for storage The delimbing mechanism is fixedly supported on a tree-processing boom which is pivotable relative to the vehicle about a substantially horizontal axis when a tree is placed in the delimbing mechanism so that the boom assumes a position which is parallel to the tree when the tree is placed in the delimbing mechanism. The cutting and clamping mechanisms are also supported on the boom and are movable along the boom relative to the delimbing mechanism to enable a tree to be sequentially clamped, delimbed and cut into bolts. Means is provided for sensing the diameter of the tree as the tree passes through the processing apparatus and which is operable to effect ejectment of the top of the tree from the apparatus when the diameter of the tree in the apparatus is below a predetermined diameter.

3,708,001

BARKING DRUM

Rauno Veikko Koskinen, Hallituskatu 6, Pori, Finland

Filed Nov. 10, 1970, Ser. No. 88,332
Claims priority, application Finland, Nov. 12, 1969, 3260/69
Int. Cl. B27l *1/04*
U.S. Cl. 144—208 B **10 Claims**



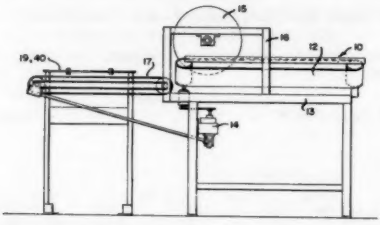
A drum barker including an elongated drum arranged to rest in a horizontal position and supported for rotation by several systems of motor driven wheels placed in a row on both sides of the drum and for axial movement by a set of wheels engaging a pair of guiding rings situated on the drum. The drum is adapted to receive through one end the timber to be debarked. The inner surface of the drum is provided with projections for removing the bark, while the outer surface is provided with slots through which the detached bark is discharged. Alternatively, the outer surface is provided with a plurality of reinforcing hoops with a set of wheels symmetrically disposed on either side thereof. A spray system is included for spraying a liquid on the timber either as it enters the drum to soak the bark or as it leaves the drum to facilitate the removal of loose bark from the timber, or both. The spray system may also spray the rotating and axially movable drum and the system of wheels to reduce the friction between the outer surface of the drum and its points of contact with the system of wheels. Alternatively to, or in conjunction with, the spray system a parallel switching system may be utilized for equalizing the operation of the motor driven wheels.

3,708,002
MALTING OF DEHUSKED GRAIN
John Anthony Collier, and William Aidan Buckley, both of Ipswich, Suffolk, England, assignors to Pauls and Sandars Limited, London, England
Filed May 11, 1970, Ser. No. 36,468
Claims priority, application Great Britain, May 13, 1969, 24,305/69
Int. Cl. B02b 3/00
U.S. Cl. 99—50 9 Claims

The invention relates to improvements in the malting of grain in which a proportion of the outer layers i.e., the husk when present and the pericarp testa is removed by mechanical treatment whereby the speed of malting is increased.

Preferably the mechanical treatment penetrates the pericarp of essentially all of the grains. The amount of the outer layer removed may be for example up to 3 percent and can be as high as 10 percent of the dry weight of the grain. The removal of larger amounts of the outer layers produces in addition to a faster malting a higher extract and a high protein content in the spent grains.

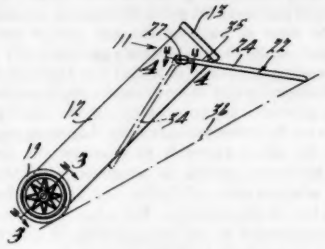
3,708,003
METHOD FOR PREPARING CITRUS HALVES
Hans W. Grotewold, Sebring, Fla., and Don S. Bryan, P.O. Box 154, Bartow, Fla.
Division of Ser. No. 5,611, Jan. 26, 1970, Pat. No. 3,638,695.
This application Oct. 13, 1971, Ser. No. 188,962
Int. Cl. A23n 15/00
U.S. Cl. 99—233.11 2 Claims



An apparatus and method are provided for preparing citrus halves such as grapefruit for the table, comprising a Vee trough conveyor means receiving and transferring a generally spherical fruit with its axis transverse to its path of travel, a cutter in the path of said conveyor bisecting the angle of the Vee trough and cutting the fruit carried thereby, a moving table receiving the cut portions of fruit from the Vee conveyor and moving such portions away from the cutter, a cutter table adjacent said moving table, a first driven shaft moving vertically axially beneath said table, said shaft having a radial arm on the upper end thereof, a vertical cutter adjustable on said arm, an annular opening in the table through which said cutter projects when said first shaft is raised, means acting on said first shaft selectively to raise and lower the same, a second driven shaft spaced from the first, movable vertically axially beneath the table, a hole cutter on said shaft, an opening in the table through which said hole cutter extends when said second shaft is raised, means acting on said second shaft selectively to raise and lower the same, stop means on the table top adjacent each of the annular opening and the hole cutter opening whereby halves of fruit are positioned and drive means acting on each of the first and second shafts.

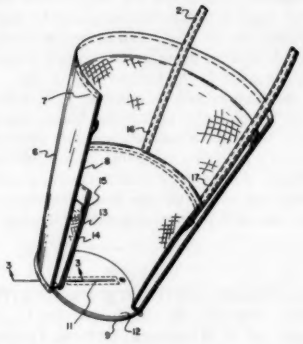
3,708,004
GOLF CLUB CARRIER
Paul F. Seibold, 26665 York Road, Huntington Woods, Mich.
Filed Aug. 31, 1970, Ser. No. 68,073
Int. Cl. A63b 55/08
U.S. Cl. 150—1.5 B 3 Claims

A very light compact golf club carrier is provided with a bag portion of rigid construction preferably of molded plastic. The rigid bag portion supports a pair of wheels at the bottom center or at the forward edge when a foot at the rearward edge is provided to form a three-point support. A bail is pivoted at



the top of the bag portion which is movable downwardly thereagainst to form a compact unit. The bag portion, bail, wheels and axle are boxed as a kit and require no assembly by the manufacturer.

3,708,005
GARMENT BAG
Rita M. Crain, 5419 S. 4th Avenue, Phoenix, Ark.
Filed Sept. 16, 1971, Ser. No. 181,103
Int. Cl. A45c 3/00
U.S. Cl. 150—30 10 Claims



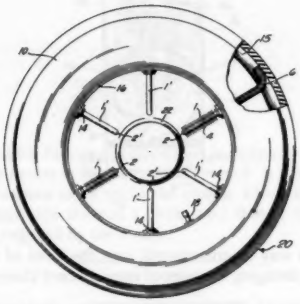
A device which provides a means for carrying large bulky skirts without unduly wrinkling or compressing them. The device in its simplest form comprises a frusto-conical bag having the larger end open and the smaller end closed. The smaller end forms the bottom of the bag and carrying straps extend from the open end. An open-ended cylindrical or frusto-conical shaped section of material is attached to the inside bottom of the bag. The point of attachment may be somewhat inwardly from the outside edge of the bottom whereby the section of material in conjunction with the side of the bag forms an annular cavity. The bottom of the bag includes an open slit. In operation, the skirt, such as a crinoline petticoat, is rolled or folded such that the waistband comprises one end of the roll while the bottom of the petticoat comprises the other end. The petticoat is then inserted in the bag by the operator extending her hand through the slit and into the bag. She then grasps the petticoat at the waistband and pulls the petticoat into the bag through the open end. The height of the bag should be approximately equal to the length of the petticoat such that the lower portion of the petticoat is essentially even with the top of the bag. The annular pocket formed by the section of material and the side of the bag may contain such items as dancing shoes and other paraphernalia. There may be additional pockets attached to the outside of the bag for carrying smaller items, such as badges, lipstick, etc. Thus, the invention teaches a means whereby bulky costumes, such as crinoline petticoats, may be easily and conveniently carried to the social occasions demanding the use of such costumes.

3,708,006

TIRE COOLING DEVICE AND METHOD OF COOLING

Calvin J. King, Muskego, Wis., assignor to Perfex Corporation, Milwaukee, Wis.

Filed Dec. 14, 1970, Ser. No. 97,873
Int. Cl. B60c 19/06
U.S. Cl. 152—153 6 Claims



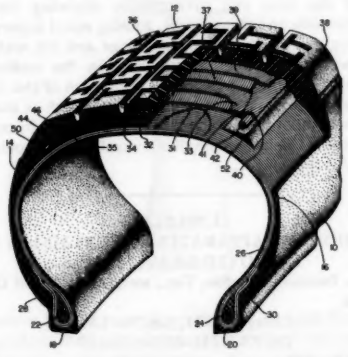
A cooling device and method for cooling a rotating wheel that has an outer periphery generating heat as it contacts another surface. The cooling device is a sealed tubular member partially filled with a volatile liquid that vaporizes as it contacts heat from the outer periphery of the wheel. The vapor rises to an opposite end of the tubular member where it condenses as it is cooled and returns to the first end of the tubular member due to centrifugal force of the rotating wheel. This cycle repeats and is a continuous cooling process. The tubular member may be a conventional capillary heat pipe extending through the rim of a vehicle wheel so the first end absorbs tire heat and the other end rejects heat to the air.

3,708,007

PNEUMATIC TIRE INCLUDING BELT CABLES

Donald L. Roberts, Silver Lake, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Oct. 28, 1970, Ser. No. 84,709
Int. Cl. B60c 9/18
U.S. Cl. 152—361 7 Claims



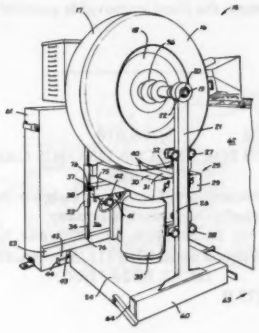
A radial ply pneumatic tire having a pair of folded belt plies which includes an inextensible cable extending circumferentially about the tire in the fold of each belt ply which is located adjacent the lateral edges of the tread.

3,708,008

TIRE LOADING AND TRUEING APPARATUS

John Henry Schildmeier, 6038 Crows Nest Drive, Indianapolis, Ind.

Filed Dec. 14, 1970, Ser. No. 97,903
Int. Cl. B29h 21/08
U.S. Cl. 157—13 4 Claims



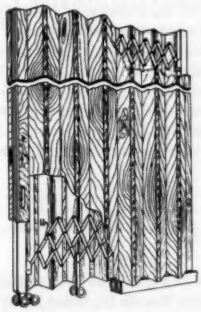
An apparatus for loading and trueing tires. A threaded rod supported by a pair of upstanding arms receives the tire and is rotatably driven. A floating roadbed having parallel rollers for contacting and loading the tire is forced against the tire by an expandable bag. The upstanding arms and tire are movable toward a cutting blade. A disc mounted to one end of the threaded rod receives graph paper on its outer surface, and a marking stylus is positioned over the graph paper being driven by a rod clamped to the floating roadbed.

3,708,009

FOLDING DOOR ARRANGEMENT

Gunter Viol, 276 Bloherfelder Str., 29 Oldenburg, and Werner Kohfeld, Breite Strasse 104, Brake Unterweser, both of Germany

Division of Ser. No. 657,970, Aug. 2, 1967, Pat. No. 3,476,630, and a continuation of Ser. No. 773,610, Nov. 5, 1968, abandoned. This application May 8, 1970, Ser. No. 33,173
Claims priority, application Germany, Aug. 4, 1966, L 54250; Jan. 17, 1967, L 55509
Int. Cl. E06b 3/94
U.S. Cl. 160—84 V 6 Claims



A folding door arrangement of the accordian door type in which the cover is made up of relatively wide and relatively narrow wooden panels so that each fold of the cover is defined by a pair of relatively wide panels spaced apart by a relatively narrow panel, with the panels of each fold being connected together by articulating tapes applied to the outwardly facing surfaces of same, with such outwardly facing surfaces being

covered by wood grained bearing veneer arranged so that in both the opened and closed positions of the door, an attractive, substantially continuous wood grained aesthetic effect is presented by the door side surfaces. The edges of the respective relatively wide panels at the inside of each fold are articulated to adjacent corresponding edges of adjacent relatively wide panels by similar tapes that are secured to carrier bars in turn supported by a lazy tong type extensible frame that is connected between the fixed immovable posts of the door.

3,708,010

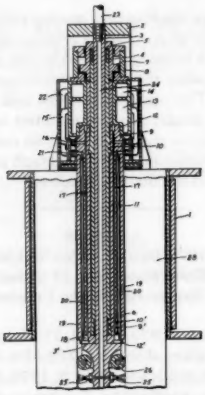
APPARATUS FOR THE CONTINUOUS CASTING OF TUBES

Willi Simons, Duesseldorf, Germany, assignor to Schloemann Aktiengesellschaft, Dusseldorf, Germany

Division of Ser. No. 14,298, Feb. 26, 1970, Pat. No. 3,638,715. This application Sept. 17, 1971, Ser. No. 181,526

Int. Cl. B22d *11/00*

U.S. Cl. 164—273 R **10 Claims**



Apparatus for the continuous casting of tubes includes a mandrel which extends into the mold. The diameter of the mandrel is expandable and contractable, suitably by having the mandrel composed of radially movable segments. During casting the diameter of the mandrel is expanded when there is no relative movement between the tube being formed and the mandrel, and is contracted when the tube moves relatively off the mandrel. In oscillating molds, in which the mandrel also oscillates, there would be no relative movement between the mandrel and the tube during the downward movement of the mandrel, during which the mandrel is expanded. On the upward movement the mandrel would be expanded.

3,708,011

LOCAL AIR CONDITIONING APPARATUS

Angelo Serratto, Piazza Novelli 10, Milan, Italy

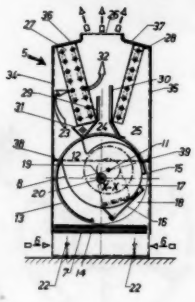
Filed Dec. 10, 1970, Ser. No. 96,784

Claims priority, application Italy, Dec. 24, 1969, 263021 A/69

Int. Cl. F24f *3/00*

U.S. Cl. 165—22 **7 Claims**

A local air conditioning apparatus for installations with distribution of secondary water through four pipes, comprising two heat-exchangers housed in two different chambers with an interposed neutral or by-pass chamber, and a fan for conveying the air to be conditioned through one or two of said chambers, said fan being rotatable so that its outlet can be adjusted



in a stepless way to correspond with the inlet of one of the chambers or bridging the inlet of two adjacent chambers.

3,708,012

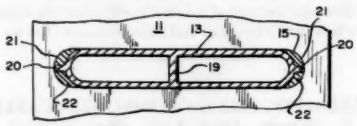
HEAT EXCHANGER

John W. Zimprich, Knoxville, Tenn., assignor to Modine Manufacturing Company

Filed May 11, 1971, Ser. No. 142,206

Int. Cl. F28d *1/06*

U.S. Cl. 165—152 **7 Claims**



A heat exchanger such as a radiator including heat exchange tubes for a fluid and a heat exchange wall such as a header with an opening into which each tube extends and an exterior flange on each tube extending generally longitudinally of the tube and substantially spanning the space between the tube and the opening. Joining metal is provided in the opening uniting the tube, the flange and the wall at the opening with the joining metal when in the molten state wetting the tube, flange and wall in the region of the opening. The flange comprises a relatively soft metal such as aluminum for easy removal of the outer edge of the flange as by peeling it back when the opening is smaller than the space spanned by the tube plus the flange.

3,708,013

METHOD AND APPARATUS FOR OBTAINING AN IMPROVED GRAVEL PACK

Newton B. Dismukes, Dallas, Tex., assignor to Mobil Oil Corporation

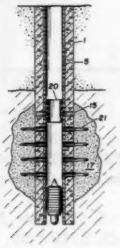
Filed May 3, 1971, Ser. No. 139,525

Int. Cl. E21b *43/04, 43/119*

U.S. Cl. 166—276 **6 Claims**

This specification discloses a process for providing a gravel pack adjacent a subsurface formation in a well having a string of casing therein. In carrying out this process, first perforations are formed through the casing adjacent the subsurface formation and materials are flowed therethrough to provide a consolidated gravel pack. Second perforations are thereafter

formed through the casing to extend into and terminate within the consolidated gravel pack. Also disclosed is a well tool which may be employed in carrying out this process. This well tool is comprised in combination of an elongated body housing a means for forming perforations in casing in a well, which body has a recess in the lower end thereof. A plug is provided which is adapted to be set in the casing, which plug has fixed to the upper side thereof a protrusion that is adapted to be positively engaged by the recess.



3,708,014

HYDROCHLORIC ACID/HYDROFLUORIC ACID TREATMENT TO REMOVE ASBESTOS FIBERS FROM A WELL BORE

Robert F. Wally, Bartlesville, Okla., assignor to Phillips Petroleum Company

Filed June 23, 1971, Ser. No. 156,091
Int. Cl. E21b *43/27, 43/28;* **C03b** *37/00*
U.S. Cl. 166—307 **4 Claims**

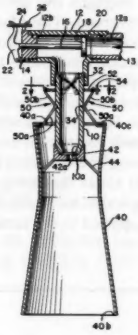
An aqueous mixture of hydrochloric acid and hydrofluoric acid is employed to accomplish the 98 percent disintegration of chrysotile asbestos. In a specific embodiment an aqueous mixture of hydrochloric acid and hydrofluoric acid is injected into a well to remove chrysotile asbestos injected into the well in a well-working fluid.

3,708,015

SYSTEM FOR FIRE PROTECTION USING RECIRCULATION OF COMBUSTION PRODUCTS

Cheng Yao, Weston, Mass., assignor to Factory Mutual Research Corporation, Norwood, Mass.

Filed Nov. 12, 1971, Ser. No. 198,386
Int. Cl. A62c *35/52*
U.S. Cl. 169—12 **19 Claims**



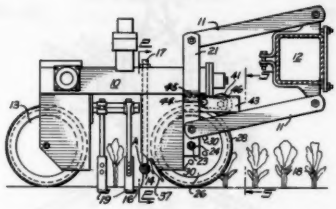
A system for fire protection wherein a nozzle discharges an extinguishant in response to a predetermined fire condition in a manner to create an aspiration effect which circulates the combustion products from the fire in a path including the fire. The circulation of the combustion products is terminated and the rate and manner of discharge of extinguishant from the nozzles can be changed in response to an additional predetermined fire condition.

3,708,016

LEAF LIFTERS FOR PHOTOELECTRIC PLANT THINNERS

Benjamin A. Shader, Golden, Colo., assignor to The Evermans Mfg. Company, Denver, Colo.

Continuation-in-part of Ser. No. 12,288, Feb. 18, 1970, Pat. No. 2,654,998. This application Aug. 19, 1971, Ser. No. 173,011
Int. Cl. A01b *63/112, 33/00*
U.S. Cl. 172—6 **8 Claims**



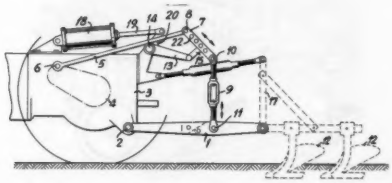
A mechanism for lifting obstructing leaves from the path of a photo-electric light beam which is being propelled along and above a plant row for photo-electric thinning purposes. The mechanism includes a gauge wheel rolling along each side of the row and leaf-gathering discs positioned between the gauge wheels and over the row and having first transmission means applying torque from said gauge wheels to the leaf-gathering discs to cause the latter to engage and lift plant leaves above the path of the beam and having a second transmission means for frictionally applying torque from either gauge wheel to the other gauge wheel for driving the two gauge wheels simultaneously in unison.

3,708,017

ARRANGEMENT FOR MOUNTING AGRICULTURAL IMPLEMENTS ON A TRACTOR WITH ROCKING SIDE TRANSMISSIONS

Nikolai Ivanovich Alexandrovsky, ulitsa Olega Koshevogo, 1, kv. 58; Vadim Fomich Pronko, ulitsa Stakhanovskaya, 37, kv. 25; Mikhail Ivanovich Perepechkin, ulitsa Promyshlennaya, 13/5, kv. 23, and Petr Adamovich Amelchenko, ulitsa Gritsevtsa, 1, kv. 59, all of Minsk, U.S.S.R.

Filed Jan. 15, 1970, Ser. No. 2,989
Int. Cl. A01b *63/111, 63/28;* **B60g** *19/00*
U.S. Cl. 172—239 **1 Claim**



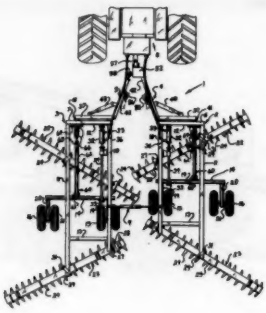
An arrangement for mounting agricultural implements on a tractor with rocking side transmissions comprising draw-bar links for mounting the agricultural implements thereon, lifting levers, and a system of links connecting said draw-bar links with the rocking side transmissions and serving to transmit the rocking motion of the transmissions to the draw-bar links.

3,708,018

TWIN-OFFSET DISC IMPLEMENT WITH RELEASABLE FASTENING MEANS CONNECTING DUAL FRAMES

Robert A. Wilbeck, Reno, Kans., assignor to Wilbeck Machine and Manufacturing, Inc., South Hutchinson, Kans.

Filed Feb. 22, 1971, Ser. No. 117,343
Int. Cl. A01b *23/04*
U.S. Cl. 172—313 **8 Claims**



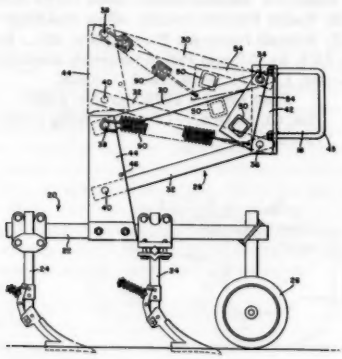
A twin-offset disc implement particularly effective for earth working operations on uneven ground, is disclosed which includes a pair of mobile frames each having an adjustable tongue structure on a forward end thereof for connecting the frames to a prime mover and a fastening member extends between the frames for positioning the frames in side-by-side relation and has opposite ends thereof mounted on the frames to permit independent raising and lowering of the frames during working terraces and uneven ground.

3,708,019

SPLIT-LIFT CULTIVATOR

Edward Clyde Ryan, Ankeny, Iowa, assignor to Deere & Company, Moline, Ill.

Filed Nov. 2, 1970, Ser. No. 85,997
Int. Cl. A01b *63/10*
U.S. Cl. 172—470 **7 Claims**



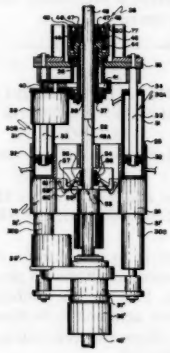
A row crop cultivator including an elongated toolbar adapted for attachment to a tractor three-point hitch and a plurality of cultivator rigs pivotally connected to the toolbar in spaced locations by upper and lower links. A pair of lift bars are pivotally mounted on the toolbar and extend beneath the upper links for the cultivator rigs and a pair of hydraulic cylinders are operatively connected between the toolbar and lift bars to individually or simultaneously move the lift bars about the pivotal connections with the toolbar. When the lift bars are pivoted upwardly, they engage the upper links and raise the cultivator rigs independently of any movement of the toolbar. Coil springs are tensioned between the upper links and the lift bars so that when the lift bars are pivoted downwardly, the springs are tensioned to provide a downward bias on the rigs.

3,708,020

CONTINUOUS FEED HEAD DRILL ASSEMBLY

James Sidney Adamson, 539-47 Avenue S.W., Calgary, Alberta, Canada

Filed Jan. 15, 1971, Ser. No. 106,691
Int. Cl. E21b *5/00, 19/08*
U.S. Cl. 173—7 **19 Claims**



Opposed pairs of piston and cylinder assemblies each have a drill stem chuck which can be engaged or disengaged from the drill stem. When drilling, the lower chuck engages the drill stem and the lower pair of pistons moves downwardly while the upper pair moves upwardly together with the upper chuck. When the pistons are fully extended, the lower chuck releases and the upper chuck engages the drill stem whereupon the piston movement is reversed. The chuck engaging the drill stem rotates so that continuous rotation and feed is accomplished. The reverse action withdraws the drill stem from the drill hole. The upper part of the tower is pivoted so that the lengths of drill pipe can be moved from the horizontal to the vertical and vice versa. Hold means are provided engageable with a length of drill stem to prevent same from dropping into the drill hole while raising and lowering the drill stem. Hydraulic means are provided to jar the string loose if it jams in the hole and a modulating valve assembly is provided to prevent excess pressure being applied to the rotating drill bit.

3,708,021

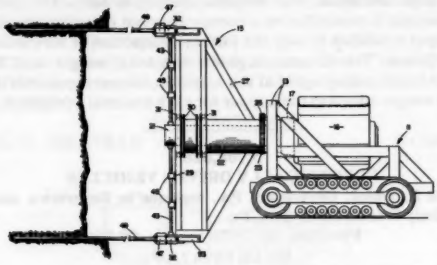
DEVICE FOR TUNNELING

Albert G. Bodine, 7877 Woodley Avenue, Van Nuys, Calif.

Division of Ser. No. 749,686, Aug. 2, 1968. This application Jan. 11, 1971, Ser. No. 105,482
Int. Cl. E01g *5/14*
U.S. Cl. 173—49 **4 Claims**

A device for tunneling comprising driving a plurality of in-

terlocking staves into the earth about a chosen circumference, by resonantly sonically vibrating the staves as they are being



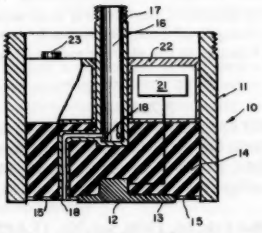
driven. After a circumference of the staves are formed the core of earth therebetween is removed to form the tunnel.

3,708,022

LOW VOLTAGE SPARK DRILL

George N. Woodruff, Merritt Island, Fla., assignor to TRW Inc., Redondo Beach, Calif.

Filed June 7, 1971, Ser. No. 150,371
Int. Cl. E21b *7/00*
U.S. Cl. 175—16 **14 Claims**



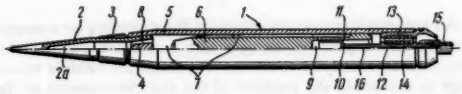
A spark drill for subterranean drilling is disclosed which may be attached to a standard or continuous drill string. The drill is characterized by multiple electrodes having a layer of semiconductor material between them which provides an electrical shunt path and further includes a trigger circuit for initiating the spark.

3,708,023

SELF-PROPELLED AIR-PUNCHING MECHANISM

Nikolai Grigorievich Nazarov; Nikolai Andreevich Chinakal; Boris Vasilievich Sudnishnikov; Alexandr Dmitrievich Kostylev; Konstantin Stepanovich Gurkov, and Konstantin Konstantinovich Tupitsyn, all of Novosibirsk, U.S.S.R., assignors to Institut Gornogo Dela Sibirskogo Otdelenia Akademii Nauk SSSR, Krasny Prospekt, Novosibirsk, U.S.S.R.

Filed Dec. 30, 1970, Ser. No. 102,672
Int. Cl. E21b *11/02*
U.S. Cl. 175—19 **1 Claim**



A self-propelled air-punching mechanism for making holes in soil by its compaction, in which a hollow body is provided with a pointed head section with a striker being located within the body and forming therewith front and rear pressure chambers, and the front chamber communicating with an additional space within the pointed head section of the body, thus raising the impact power of the mechanism.

3,708,024

DRILLING MACHINE

Carl F. Back, Orrville, Ohio, assignor to The Sanderson Cyclone Drill Company, Orrville, Ohio

Filed March 10, 1971, Ser. No. 122,957
Int. Cl. E21b *19/00*
U.S. Cl. 175—52 **7 Claims**

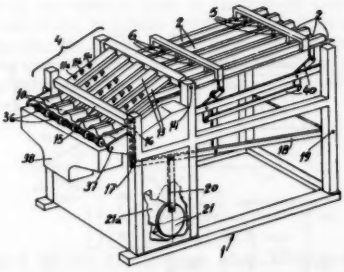
Drilling machine with tower operable in various inclined positions. The tower has operator controlled mechanisms for selective drill pipe pickup or storage and subtraction or addition in whatever working condition the drill tower is erected for rotary-type drilling.

3,708,025

METHOD AND APPARATUS FOR SELECTING OBJECTS TO BE FORMED INTO GROUPS

Federico Martinez Soler, and Jacinto Salvado Gomez, both of Barcelona, Spain, assignors to Mateo Grau Hijos, S.A., Barcelona, Spain

Filed Sept. 21, 1971, Ser. No. 182,460
Claims priority, application Spain, Sept. 21, 1970, 384,171
Int. Cl. G01g *19/22*
U.S. Cl. 177—1 **21 Claims**

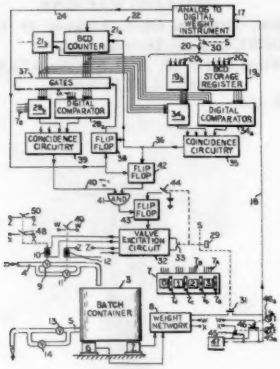


Method and apparatus for classifying a supply of objects having a common characteristic, such as size or weight, which is randomly distributed throughout the individual objects into groups in which the total value of all of the objects in each group will be the same, in which the random supply is divided into types having narrow ranges of said values, and the final groups are selected from the subdivided groups according to prearranged programs which are designed to utilize more of the objects which predominate in the random supply at the time the groups are selected.

3,708,026
DIGITAL BATCHING

Donald A. Senour, Carlisle, Mass., assignor to BLH Electronics, Inc., Waltham, Mass.

Filed July 1, 1971, Ser. No. 158,688
Int. Cl. G01g *13/04, 13/12, 23/365*
U.S. Cl. 177—60 **22 Claims**

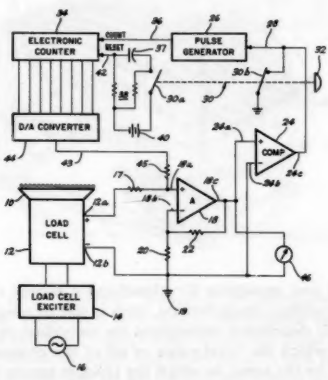


Automatic precision control of high-speed filling and emptying operations, such as those in which a liquid is admitted into or discharged from a batch, is provided by a combination of a weighing system and associated electronic digital circuitry which regulates these operations in accordance with changes in instantaneous batch weight relative to stored information concerning initial weight and which further both reduces or "dribbles" the rate at which these operations proceed just prior to their completions and anticipates and accounts for so-called "in-flight" amounts of material remaining temporarily in transit.

3,708,027
BATCHING SYSTEM UTILIZING DIGITAL-TO-ANALOG SUBTRACTION TO DENOTE THE AMOUNT OF BATCHED MATERIAL

John L. Hill, North St. Paul, Mich., assignor to Ramsey Engineering Company, St. Paul, Mich.

Filed Jan. 31, 1972, Ser. No. 222,185
Int. Cl. G01g *3/14*
U.S. Cl. 177—210 **11 Claims**

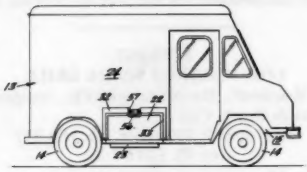


A series of pulses from a controlled pulse generator are counted by a counter and the count is converted to a negative analog voltage signal having a value denoting the count. A positive analog voltage signal is provided in accordance with the raw gross weight of a batching hopper. Both analog signals are applied to the non-inverting input of an operational amplifier having a gain of "two." When the values of the two analogs are equal, the amplifier output is zero. The pulse generator is controlled by a comparator that monitors the zero output condition to stop the further production or forwarding of pulses. The counter registers the total weight and the processed analog signal at the amplifier output represents the net weight added to the hopper for each material admission.

3,708,028
ELECTRICALLY DRIVEN VEHICLES

Paul R. Hafer, Boyertown, Pa., assignor to Boyertown Auto Body Works, Boyertown, Pa.

Filed Dec. 21, 1970, Ser. No. 99,750
Int. Cl. B60k *1/00*
U.S. Cl. 180—65 R **5 Claims**

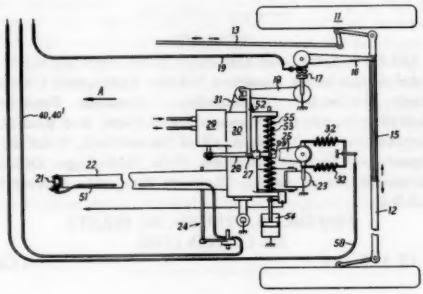


This invention relates to improvements in electrically powered vehicles and more particularly to structure for effecting the quick changes of batteries in such vehicles together with improved features in the electric motor drive.

3,708,029
SYSTEM FOR GUIDING VEHICLES

Hugh B. Sedgfield, late of Esher, England; Norman Kenneth Brown, Binfield, and Eric James Birchnall, Bracknell, both of England, assignors to Sperry Rand Limited, London, England

Filed Feb. 16, 1970, Ser. No. 11,637
Claims priority, application Great Britain, Feb. 15, 1969, 8,344/69
Int. Cl. B62d *3/00*
U.S. Cl. 180—79 **15 Claims**



An automatic steering mechanism for mounting on a steerable vehicle to guide it along a slot in a track has a feeler mounted forwardly of the front wheels of the vehicle to engage in and sense the position of the slot. Movements of the feeler laterally with respect to the vehicle are transmitted through a system of incompressible links to control an hydraulic ram. The ram movement is damped and applied to the track rod of the vehicle.

3,708,030

HYDRAULIC BRAKE SYSTEM

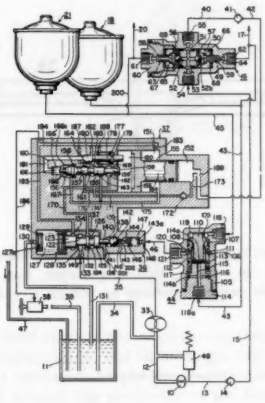
Atumi Ueda, Kariya, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Kariya, Japan

Filed Sept. 24, 1970, Ser. No. 75,063

Claims priority, application Japan, Sept. 24, 1969, 44/75965; Sept. 24, 1969, 44/75966; Sept. 24, 1969, 44/75967

Int. Cl. B62d 5/06

U.S. Cl. 180—79.2 R 3 Claims



A vehicle having a hydraulic power brake system and a hydraulic power steering system, each having its own pump may utilize the power steering system pump as an emergency back up pump for the power brake system should the pump for the power brake system fail. The fluid under pressure in the accumulator for the power brake system will act upon failure of the power brake pump to initiate the switch over to the power steering pump.

3,708,031

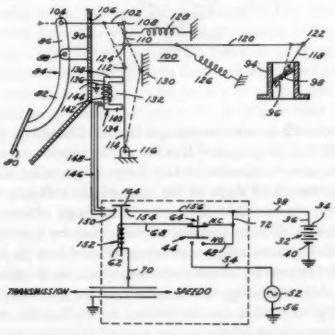
MAXIMUM VEHICLE SPEED LIMITER

Zbigniew J. Jania, Northville, and Lawrence J. Vanderberg, Ann Arbor, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Dec. 31, 1970, Ser. No. 103,213

Int. Cl. B60k 31/00

U.S. Cl. 180—110 10 Claims



A maximum vehicle speed limiter for use in an automotive vehicle that has a throttle pedal connected to a carburetor throttle valve through a linkage means. This linkage means includes two links which are pivotally connected through a pivotal connection at one end of each of the links. The other end of one of the links is coupled to the throttle pedal, and the other end of the link is pivotally anchored in the automotive vehicle. Means in the form of additional linkage is coupled to the throttle pedal and to a position intermediate the ends of the first mentioned link. When the speed of the automotive vehicle is below a predetermined limit, an electromagnet holds the pivotal connection between the two links in a given position. When this speed is exceeded, the electromagnet is de-energized and the pivotal connection moves into a second position which acts on the linkage connected to the carburetor throttle plate to move this throttle plate towards a closed position, thereby limiting the maximum speed of the automotive vehicle.

3,708,032

ACCIDENTAL LOCK PREVENTING DEVICE

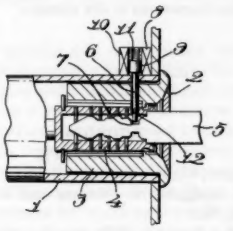
Masaru Suzuki, Hekikai-gun, Aichi-ken, Japan, assignor to Kabushiki Kaisha Tokai Rika Denki Seisakusho, Aichi-ken, Japan

Filed Nov. 19, 1970, Ser. No. 91,109

Claims priority, application Japan, Nov. 24, 1969, 44/94061

Int. Cl. B60r 25/02; E05b 65/12

U.S. Cl. 180—114 11 Claims



A device is provided for preventing accidental locking of the steering shaft of a motor vehicle of the type having an ignition lock, operable by rotation of an ignition key. A locking bolt, which is engageable with the steering shaft only upon the rotation of the ignition lock to ignition-off position, and withdrawal of the key from the ignition lock, is prevented from engaging the steering shaft during the running of the vehicle by means which is electrically actuated and which will permit withdrawal of the key from the ignition lock only upon the halting of the vehicle.

3,708,033

STIMULATOR

Caperton B. Horsley, East Walpole, Mass., assignor to Braxton Corporation, Medfield, Mass.

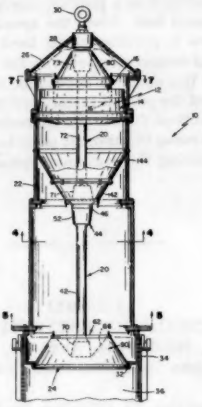
Filed Sept. 2, 1969, Ser. No. 854,373

Int. Cl. G01v 1/14

U.S. Cl. 181—.5 MW 17 Claims

Apparatus for generating a sound field comprising a support, an elongated elastic column constructed to maintain its structural integrity when subjected to vibrational stresses, constraint structure constraining the column against transverse motion relative to the support while permitting longitudinal motion of portions of the column, an electromagnetic motor arranged to provide periodic longitudinal forces acting on an end of the column, the period of these forces being

equal to the period of the longitudinal resonant vibrational mode of the column, a control system for controlling the amplitude of longitudinal motion of the column, and a piston affixed to an end of the column and having an extended gas-interacting surface transverse to the column.



3,708,034

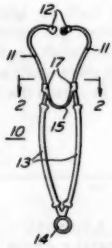
STETHOSCOPE

Carrell G. Ziegler, Flourtown, and Albert H. Hoffman, Roslyn, both of Pa., assignors to Dittmar and Penn Corporation, Philadelphia, Pa.

Filed June 24, 1971, Ser. No. 156,449

Int. Cl. A61b 7/02

U.S. Cl. 181—24 **2 Claims**



A stethoscope is provided having ear tubes connected by a resilient band which permits swinging movement of the free ends of the ear tubes toward and away from each other in a plane for insertion for use and removal but resists displacement of the ear tubes from that plane, the ends of the resilient band being formed into spring collars and having struck out projections engaged in slots in the tubes to prevent longitudinal separation and turning of the tubes.

3,708,035

DIAPHRAGM FOR LOUDSPEAKERS

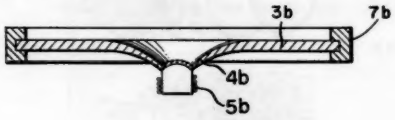
Hiromi Sotome, Hamamatsu-shi, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Shizuoka-ken, Japan

Continuation-in-part of Ser. No. 803,822, March 3, 1969, Pat. No. 3,586,121. This application Feb. 4, 1971, Ser. No. 112,784

Claims priority, application Japan, Nov. 30, 1967, 42/100056

Int. Cl. G10k 13/00; H04r 7/00

U.S. Cl. 181—32 R **2 Claims**



A diaphragm for a loudspeaker made of foamed plastic or like material, in which the diaphragm has a decreased thickness at its central portion to which a voice coil is attached.

3,708,036

APPARATUS FOR ATTENUATING THE NOISE MADE BY FLUID JETS EJECTED FROM A CONDUIT

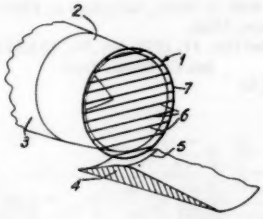
Louis Duthion, Paris; Andre Emile Roger Cabassut, Versailles, and Andre Julien Labussiere, Fontenay-le-Fleury, all of France, assignors to BERTIN & Cie, Plaiser, Yvelines and Avions Marcel Dassault, Vaucresson, Hauts de Seine, France

Filed May 11, 1971, Ser. No. 142,155

Claims priority, application France, May 11, 1970, 7016980

Int. Cl. F01n 1/08, 1/16; B64d 33/06

U.S. Cl. 181—33 H **9 Claims**



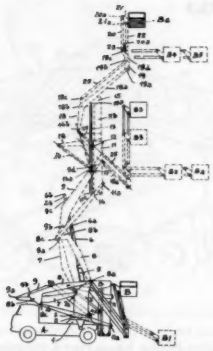
An openwork screen is placed in the discharge plane of a conduit discharging a jet of fluid at sonic speeds, to reduce the noise. The screen can be in the form of parallel slats, radial slats or a network of slats. In the case of aircraft jets the screen is preferably removable form the discharge plane of the jet outlet conduit. To do this the screen can be constructed so that it disintegrates after a predetermined length of time or can be destroyed by explosives or other such means when required. Alternatively, the screen can be pivotally mounted on the wing so that it can be swung by hydraulic means into the discharge plane of the jet or out of the way, it can be arranged as a blind which can be drawn over the jet outlet, or it can be in the form of elements pivotally attached at one end to the conduit around its circumference and releasably connected near the center of the conduit so that the elements normally form a screen of radial slats, but when their center connection is released they splay out behind the jet.

3,708,037

THREE HYDRAULIC LIFTING STAGES SELF-PROPELLED CRANE WHICH MAY BE MOUNTED

Jacques Tranchero, Via Villanonetta 2, Piasco, Italy

Filed April 8, 1971, Ser. No. 132,377
Claims priority, application Italy, April 8, 1970, 68170 A/70
Int. Cl. B66f *11/04*
U.S. Cl. 182—2 **10 Claims**



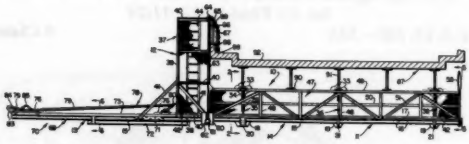
A self propelled crane is provided having three separate but cooperating lifting stages. The three stages are independently actuatable. At maximum height the components of the crane do not extend beyond the perimeter of the bearing points of the base. Two nacelles are included in the crane for supporting operators.

3,708,038

CANTILEVER SUPPORT

Joseph B. Ewing, Jr., P.O. Box 978, Innis, La.

Filed Sept. 10, 1971, Ser. No. 179,303
Int. Cl. E04g *3/10*
U.S. Cl. 182—150 **9 Claims**



A platform to safely support a plurality of workmen together with tools, equipment and supplies, for use in maintenance work beneath and in close proximity to a portion of the underside of a bridge on which work is to be performed. An upright frame structure rises from an inner end of the platform and defines a vertical passageway by which the workmen and supplies may move between the platform and the upper side of the bridge. Suspending means secured to said end of the platform extends to above said passageway for attachment to a transit crane, by means of which the platform is moved to and from a position beneath the bridge. The passageway extends upwardly along a side of the bridge and to above said bridge side to be accessible from the upper side of the bridge when the platform is disposed therebeneath. Adjustable cantilever means forms an extension of said inner end of the platform for causing the platform to swing upwardly against the underside of the bridge, while suspended by the crane, to facilitate securing hanger means, carried by the platform, to the frame structure of the bridge, after which the cantilever means is adjusted for reducing the counter balancing affect thereof, so that said hanger means will partially support the platform, and thereafter provide the sole support for the platform when the crane is disconnected from said suspending means.

ERRATUM

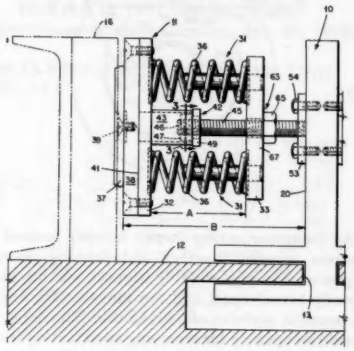
For Class 182—214 see:
Patent No. 3,708,080

3,708,039

BRAKE SPRING APPARATUS

John A. Germer, c/o The Budd Company, 2450 Hunting Park Avenue, Philadelphia, Pa.

Filed Dec. 3, 1970, Ser. No. 94,715
Int. Cl. B61k *7/02*
U.S. Cl. 188—62 **2 Claims**



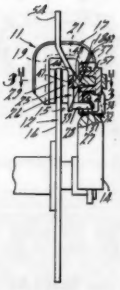
This invention pertains to a compression spring supported plate assembly which carries a friction lining for coaction with an arrestment surface and which is supported a predetermined distance away from a movable base structure. The precompression of the springs can be altered to change the brake force, acceleration, independently and without affecting the distance of the brake lining from the base structure. Correspondingly the distance of the brake lining from the base structure to compensate for brake wear can be altered without affecting the precompression of the springs.

3,708,040

DISK BRAKE WITH SERVO ACTION

Harold S. Hollnagel, Milwaukee, Wis., assignor to Kelsey-Hayes Company

Filed Aug. 19, 1970, Ser. No. 65,080
Int. Cl. F16d *55/46*
U.S. Cl. 188—72.2 **11 Claims**

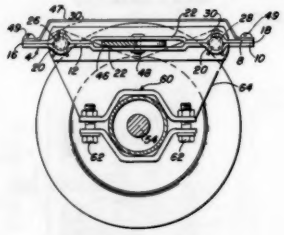


Two embodiments of disk brake assemblies embodying simplified actuators that include tilting pins. The pins are tilted to cause axial movement of the brake pads into frictional engagement with the associated brake rotor. The direction of tilting of the pins is such that a self-energizing force is exerted upon the brake.

3,708,041
BRAKE

Emil H. Hahn, St. Joseph, Mich., assignor to Lambert Brake Corporation, St. Joseph, Mich.

Filed Feb. 11, 1971, Ser. No. 114,414
Int. Cl. F16d 55/224
U.S. Cl. 188—72.9 8 Claims

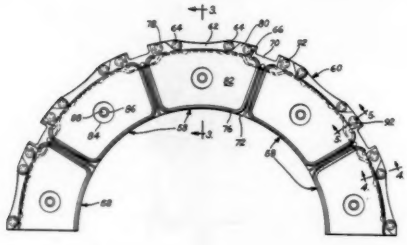


A brake comprises a ring-shaped housing formed of sheet metal halves secured together and forming openings for receiving pins. The pins slidably support braking plates that are normally biased apart and are movable for engagement with the opposite surfaces of a brake disc. The housing halves also provide an opening for receiving an actuating lever that is engageable with one of the braking plates. The housing may be shiftably mounted on a fixed mounting plate for use with an axially fixed rotating disc, or the housing may be fixedly mounted for use with an axially shiftable brake disc.

3,708,042
CARBON CORE SEGMENTED FRICTION DISC

Walter J. Krause, and Gilbert T. Stout, both of South Bend, Ind., assignors to The Bendix Corporation

Filed Sept. 21, 1970, Ser. No. 74,054
Int. Cl. F16d 65/12
U.S. Cl. 188—73.2 8 Claims

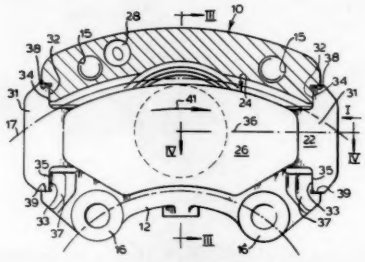


A friction disc for a disc brake having a plurality of interleaved brake rotor and stator discs which are forced together to provide a friction effect. The rotor is provided with a plurality of segments each of which includes a carbon block having friction material pads fixedly secured to opposite faces thereof. The segments are attached to a ring or strap which holds the segments in fixed spaced-apart relationship to define an annular rotor disc.

3,708,043
DISC BRAKES

Heinrich Bernhard Rath, Koblenz-Luetzel, and Wolfgang Hess, Rubenach, both of Germany, assignors to Girling Limited, Birmingham, England

Filed Sept. 22, 1970, Ser. No. 74,328
Claims priority, application Great Britain, Sept. 25, 1969, 47,135/69
Int. Cl. F16d 55/228
U.S. Cl. 188—73.3 10 Claims

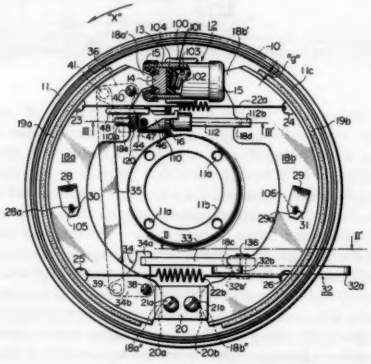


A spot-type disc brake has a fixed caliper straddling the disc and containing hydraulic actuator pistons acting on the back plates of opposed brake pads disposed at opposite sides of the disc. The back plates have "T" shaped side edge portions whose circumferentially inwardly facing surfaces cooperate with circumferentially outwardly facing abutment surfaces on the caliper. This enables the brake drag forces to be taken from the brake pads at their leading edges.

3,708,044
VEHICLE EXPANDING BRAKE ASSEMBLY

Tatsumi Torri; Asao Kozakai; Takekazu Yamamoto, and Mizuo Nyunoya, all of Kariya, Japan, assignors to Aisin Seiki Company Limited, Aichi-ken, Japan

Continuation of Ser. No. 797,062, Feb. 6, 1969, abandoned.
This application May 18, 1971, Ser. No. 144,677
Int. Cl. F16d 51/22, 51/24
U.S. Cl. 188—326 6 Claims



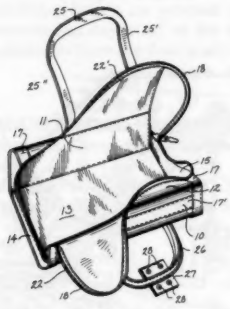
An automotive vehicle brake assembly, comprising a rotatable brake drum, a hydraulic service brake section and an emergency or parking brake section, both of said brake sections when actuated either separately or jointly are arranged to cooperate with a common pair of brake shoes adapted for frictional cooperation with said drum, said assembly being characterized by the provision of at least one mechanical linkage connected between both of said brake sections so as to modify the brake actuating mode of at least one of said brake sections under certain operating conditions.

3,708,045

LUGGAGE BAGS

Ira R. Katz, Nashville, Tenn., assignor to Hartmann Luggage Company, Lebanon, Tenn.

Filed July 19, 1971, Ser. No. 163,923
Int. Cl. A45c 5/00
U.S. Cl. 190—41 Z 8 Claims



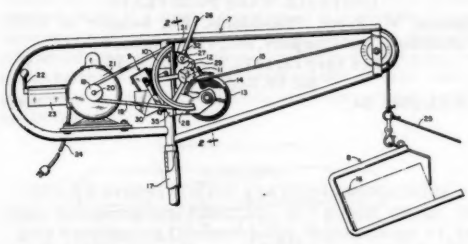
A soft, flexible bag for carrying clothing and personal accessories or the like includes a top, a bottom, first and second end walls, a pair of side walls, and a novel continuous zipper-type slide fastener which is arranged in an unusual manner whereby it follows a curved path down substantially the length of said first end wall, diagonally upwardly across one of said side walls, and in a curved path down said second end wall, the opening of said uniquely-arranged zipper permitting said flexible bag walls to hang downwardly and outwardly in a widespread condition facilitating the packing and unpacking of the bag.

3,708,046

ELECTRICALLY CONTROLLED BRAKE

Howard W. Brown, 2657 Shiras Avenue, Dubuque, Iowa

Filed Sept. 23, 1970, Ser. No. 74,738
Int. Cl. F16d 23/00
U.S. Cl. 192—2 16 Claims



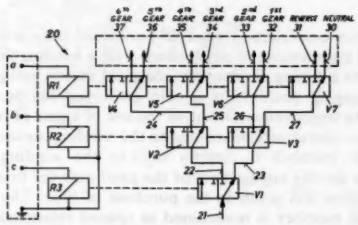
In this electrically controlled brake mechanism, a brake shoe, which normally gravitates to a braking position in engagement with a pulley wheel, so as to hold the wheel against turning when electrical power is turned off, or in the event of electrical power failure, is pivotally connected at its mid-point to one end of a link guided to move endwise tangentially relative to the circumference of the pulley wheel so that the brake shoe is retracted and allows free turning of the pulley wheel when the power is turned on, the link being operatively connected at its other end with the plunger of an electrical solenoid that is energized only when the main control switch is turned on for either forward or reverse operation of the drive motor. The motor circuit is not completed, however, until a servo-switch, that is normally in open circuit position, is thrown to closed circuit position by plunger operation of the aforesaid link. Thus, the motor does not start until a split second after the brake is released, which saves wear and tear on both the motor and the brake shoe. The combined weight of the link, the plunger, and the brake shoe assure good braking action, especially in view of the efficient angle of the downward substantially tangential travel of the shoe relative to the wheel to braking position. The compactness of the mechanism usually permits installation on the free side of a belt-driven pulley wheel.

3,708,047

ELECTRO-HYDRAULIC SELECTOR FOR THE CONTROL OF MULTIPLE LOADS

Willi Kuhnle, and Walter Frei, both of Friedrichshafen, Germany, assignors to Zahnradfabrik Friedrichshafen Aktiengesellschaft, Friedrichshafen, Germany

Filed Jan. 18, 1971, Ser. No. 107,287
Claims priority, application Germany, Jan. 20, 1970, P 20 02 315.8
Int. Cl. F16d 67/04; G06d 1/02; F16h 57/10
U.S. Cl. 192—12 C 7 Claims



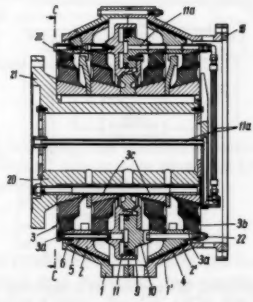
A multiplicity of loads, such as the clutches and brakes designed to establish different speed ratios in an automotive gear-shift transmission, are individually actuatable by an array of hydraulic valves forming several cascaded stages, the number of valves per stage increasing as a geometric progression of base 2. Several solenoid relays, selectively energizable with the aid of a coding matrix under the control of a manually operated shift lever, are assigned to the valves of respective stages for jointly displacing them between two alternate positions, thereby completing any one of 2^n distinct fluid paths where n is the number of stages.

3,708,048

FLUID PRESSURE CLUTCH WITH EMERGENCY SCREW OPERATOR

Peter Szynka, Witten, (Ruhr), Germany, assignor to Lohmann & Stollerfoht Aktiengesellschaft, Wittenburg/Ruhr, Germany

Filed March 22, 1971, Ser. No. 126,927
Claims priority, application Germany, March 25, 1970, P 20 15 501.5
Int. Cl. F16d 19/00
U.S. Cl. 192—83 6 Claims

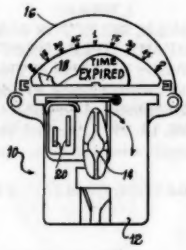


An emergency device for a pressure fluid operated double cone friction clutch, particularly as used in a ship drive system, is provided in that the pressure fluid operated parts can be mechanically moved through physical engagement in case of failure of the fluid system.

3,708,049
SPLIT-RATE METER CONSTRUCTION

Leonard J. Weber, Broadview, Ill., assignor to Qonaar Corporation, Elk Grove Village, Ill.

Filed July 7, 1971, Ser. No. 160,315
Int. Cl. G07f 5/00
U.S. Cl. 194—84 7 Claims

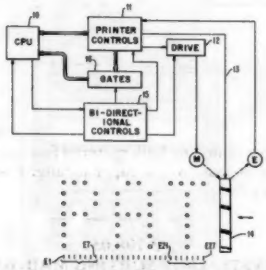


A meter construction wherein purchased time is obtained through engagement of pawl means with a winding means attached to a timing mechanism, the pawl means being moved into engaging position by a coin employed for purchasing time. The improvement involves the use of a pair of rotatable members operatively connected to the winding means. A first rotatable member is directly tied to the winding means whereby driving engagement of the pawl with the first rotatable member will result in the purchase of time. The second rotatable member is maintained in spaced relationship with respect to the first rotatable member, and the subsequent insertion of a coin results in engagement of the second rotatable member, and movement of this member relative to the first rotatable member. Driving engagement with the first rotatable member follows this initial movement and the purchase of time only begins at this point. This results in a lower ratio of purchased time to coin value. Additional delay of movement of the first rotatable member and operation of the associated time mechanism is accomplished through the use of a blocking member which holds the pawl out of an engaging position when a coin is inserted after a certain amount of purchased time is already on the meter.

3,708,050
PRINTER CONTROL WITH MONODIRECTIONAL AND BIDIRECTIONAL PRINTING COMPATIBILITY

Justin H. McCarthy, Jr., Boca Raton, Fla., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 26, 1970, Ser. No. 84,026
Int. Cl. B41j 3/12
U.S. Cl. 197—1 R 5 Claims

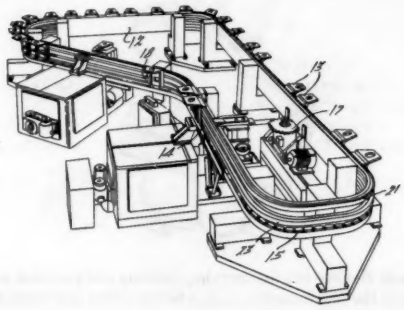


Logic is conditioned to respond as a function of whether or not a serial printer is capable of printing bidirectionally or monodirectionally. When a bidirectional printer is available, the logic modifies computer originated control signals so that bidirectional printing will be effected even though the computer controlled signals are formatted and sequenced for monodirectional printing control.

3,708,051
CONTROL MECHANISM FOR ADVANCING AND LOCATING PALLETS

Anthony L. Dato, River Vale, and Zoltan E. Zilahy, Nutley, both of N.J., assignors to Standard Tool & Manufacturing Co.

Filed March 26, 1971, Ser. No. 128,305
Int. Cl. B23q 5/22
U.S. Cl. 198—19 14 Claims

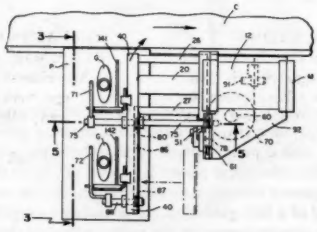


Carriers are mounted on vertical rails having a wear plate on the bottom which rests upon wear plates on a continuous chain which drives the carriers from one machine station to another where one or a group of carriers may be retained stationary as the chain continues to advance. A reciprocal control mechanism engages the wear plate of a carrier and advances it to a station where the pallet carried thereby is accurately oriented and clamped during a machining operation. The clamped pallet prevents the carrier advancement and permits the reciprocal control mechanism to be released therefrom. An escapement mechanism permits one carrier at a time to be advanced to the reciprocal control mechanism which advances the carrier or carriers to the next adjacent station or stations.

3,708,052
UNSTABLE WARE PUSH PLATE

Alphonse W. Faure, Philadelphia, Pa., assignor to C.S.S. Machine & Tool Company, Inc., Philadelphia, Pa.

Filed April 28, 1971, Ser. No. 138,123
Int. Cl. B65g 47/82
U.S. Cl. 198—24 5 Claims



In glassware forming machinery, a reciprocating type of 90° push-out assembly is modified to adapt it to the handling of unstable glassware. One or more stabilizing fingers are added which become positioned on the outer side of the glassware. These fingers cooperate with the normal push fingers to engage the unstable glassware on three sides and thereby to stabilize the ware as it is swept forwardly through an arc of 90° from the dead plate to the conveyor. At the end of the 90° forward sweep, the stabilizing fingers are automatically raised so that they clear the glassware during the retraction stroke of

the 90° push-out assembly. The stabilizing fingers are maintained in their raised positions not only during the entire retraction stroke, but also during the 90° return swing of the push-out assembly to a position facing the dead plate, and also during the entire forward extension stroke of the push-out mechanism. It is not until the push plate has reached its full forward position facing the dead plate that the stabilizing fingers are lowered from their raised position. In their lowered position, the stabilizing fingers are adapted to engage the far sides of the glassware just deposited on the dead plate and to sweep the new glassware from the dead plate to the conveyor.

3,708,053

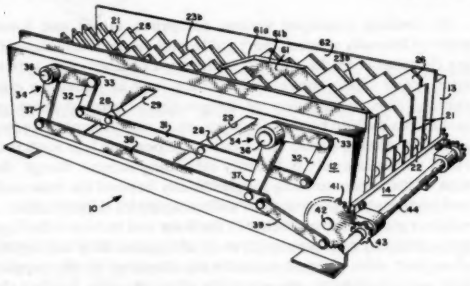
SHUFFLE FEED MECHANISM

Earl R. Anderson, Los Gatos, Calif., assignor to Brex Corp., Los Gatos, Calif.

Continuation-in-part of Ser. No. 776,682, Nov. 18, 1968, abandoned. This application May 6, 1971, Ser. No. 140,865

Int. Cl. B65g *25/04, 47/26*

U.S. Cl. 198—30 **10 Claims**



This mechanism comprises a shuffle feed mechanism having two sets of longitudinally extending serrated members forming a grid or bed, at least one of the sets of being movable longitudinally with respect to the other so as to progress articles from pocket-to-pocket or valley-to-valley along the length of the mechanism by pushing of the articles upwardly along an inclined wall of a V-shaped notch and over the apex so as to slide or roll down into the next notch. The sets of shuffle members are elevated at their discharge ends with the outer shuffle members being at a quarter elevation so as to provide a transverse trough-like configuration to cause single filing of articles progressed therethrough. Also the shuffle feed mechanism includes barrier means extending longitudinally so as to confine the articles to a narrow path along which only a single article can be fed.

3,708,054

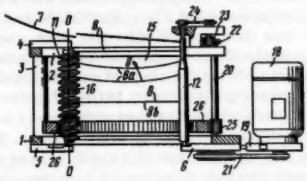
DEVICE FOR STACKING STATOR LAMINATIONS

Vitaly Konstantinovich Gilev, 118, 811 proezd, 65, kv. 16; Jury Vagarshevich Ovanesov, ulitsa Mayakovskogo, 17, kv. 8; Rafael Tevosovich Sarkisov, ulitsa Aga-Neimatully, 20a, kv. 28, and Ernst Arakelovich Stepanyan, ulitsa Druzhby Molodezhi, 2, kv. 36, all of Baku, U.S.S.R.

Filed July 14, 1971, Ser. No. 162,348

Int. Cl. B65g *47/24*

U.S. Cl. 198—33 AC **4 Claims**



The device comprises auger screws for rotating the stator laminations whose outer edges are provided with inward stacking marks and slots for fastening the stacks, and a mechanism for orienting the stator laminations, made of two vertical rotatable shafts whose upper portions are of the tapering shape. The auger screws are positioned parallel to the shafts and installed together with the latter along an imaginary circumference, forming a cylindrical space for the movement in it of the stator laminations.

3,708,055

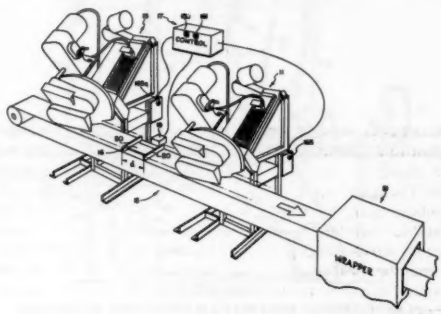
DISPENSING METHOD AND APPARATUS

Roland E. Miller, Orangeville, and David M. Neill, Chicago, both of Ill., assignors to Kraftco Corporation, Chicago, Ill.

Filed June 28, 1971, Ser. No. 157,347

Int. Cl. B65g *47/26, 47/18*

U.S. Cl. 198—34 **6 Claims**



Method and apparatus for depositing articles at uniformly spaced positions on a conveyor in such a manner as to maintain a predetermined flow of the articles on the conveyor from at least two dispensers arranged in tandem adjacent the conveyor.

3,708,056

DEVICE FOR REMOVING BULK MATERIAL FROM STORAGE

Gunter Strocker, Holzwickede, Germany, assignor to Gustav Schade Maschinenfabrik, Dortmund, Germany

Filed Feb. 2, 1971, Ser. No. 111,845

Claims priority, application Germany, Feb. 5, 1970, P 20 05 147.2

Int. Cl. B65g *65/28*

U.S. Cl. 198—36 **17 Claims**

A device for removing bulk material from storage in a dump pile includes at least one scraper arranged to be raised and lowered on a gantry spanning the dump.

3,708,057

SYSTEM FOR SORTING MAIL BAGS

Ernest B. Hardwig, P.O. Box 2685, Jacksonville, Fla.

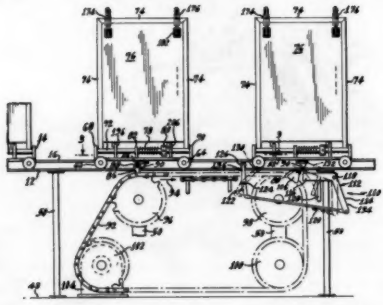
Division of Ser. No. 47,812, June 19, 1970, Pat. No. 3,655,030. This application July 2, 1971, Ser. No. 159,390

Int. Cl. B65g *43/00*

U.S. Cl. 198—38 **6 Claims**

A sorting apparatus comprising a train of carriers each having a tiltable support provided with a gripper device for

releasably retaining an empty mail sack on the carrier. The carriers follow a loop track and are advanced therealong to and past a loading station and a plurality of unloading stations. Each carrier includes a coding device which may be set by an operator at the loading station at the time an empty sack is positioned in the gripper device. A cyclic drive is provided which includes an endless chain carrying a pawl in a path which approaches the track to engage the pawl with a carrier and move the train a predetermined distance, which is an even multiple or submultiple of the distances between loading and unloading stations, and then departs therefrom to disengage the pawl. As a carrier reaches the loading station, it trips an indexing device which stops that carrier and, accordingly, the



train, in proper position. The pawl in departing from the carrier contacts the indexing device and returns it to retracted cocked condition removing the stop element from the path of the carrier, whereby the train may again be moved upon engagement of the pawl with the next carrier. Code sensing arrangements are located at the unloading stations operative to actuate mechanism to tilt the support of a correspondingly coded carrier. In tilting, the support moves the gripped sack laterally, and releases the gripper device. Mechanism at the station is also actuated to restrain the lower portion of the sack against lateral movement whereby the sacks are deposited in horizontal position on a table at the station one on top of the other to form a stack.

3,708,058

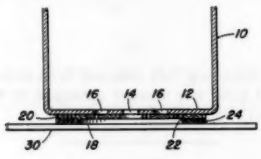
VACUUM BELT CONVEYOR

Alex E. Kalven, Somerville, N.J., assignor to GAF Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 863,138, Oct. 2, 1969, Pat. No. 3,608,895. This application Jan. 8, 1971, Ser. No. 104,971

Int. Cl. B65g *15/00*

U.S. Cl. 198—184 **1 Claim**



Flat objects are conveyed by the under surface of a springy layer on a continuous belt which moves in contact with the smooth bottom surface of a vacuum plenum chamber having an elongated slot opening to the center of the belt which has a series of perforations each corresponding to an enlarged hole in the springy layer that grips each flat object under the vacuum influence of the plenum chamber.

3,708,059

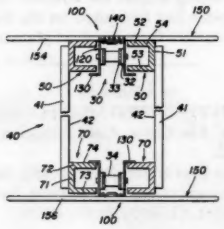
CONVEY SYSTEM AND ATTACHMENTS THEREFOR

Herman Ackermann, Richton Park, Ill., assignor to Velten & Pulver, Inc., Chicago Ridge, Ill.

Filed Oct. 14, 1971, Ser. No. 189,203

Int. Cl. B65g *17/06*

U.S. Cl. 198—189 **15 Claims**



An endless conveyor system comprises upper and lower pairs of laterally spaced-apart guide rails respectively supporting therebetween the support and return reaches of an articulated roller chain conveyor including lengths joined by connecting pins, a plurality of longitudinally spaced-apart attachments carried by the conveyor, each attachment including a bracket having a base and a pair of depending legs each provided with a laterally outwardly extending support flange, the tops of the legs extending longitudinally beyond the base ends and cooperating therewith to define a pair of support seats, a retainer plate disposed beneath the base and between the legs, and a support rod bent to form an elongated loop having the elongated sides thereof respectively disposed in the support seat and attached to the retaining plate, thereby holding the attachment parts together and substantially immovable with respect to each other, the rods cooperating to define a conveyor apron and to support the conveyor along its support reach and the support flanges cooperating to support the conveyor along its return reach.

3,708,060

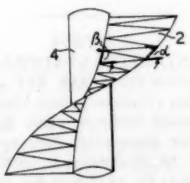
RIGID CURVED SHEET ELEMENTS, SUCH AS SCREW CONVEYOR BLADES, AND METHODS OF MAKING SAME

Daniel Ben-Natan, 27 Hanarkisim Street, Kiryat Bialik, Israel

Claims priority, application Israel, July 3, 1969, 32511/69

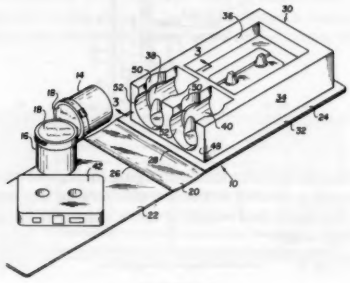
Int. Cl. B21d *11/06*

U.S. Cl. 72—379 **4 Claims**



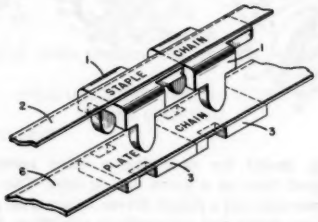
A rigid curved sheet element, such as a helicoidal screw conveyor blade, is curved by being formed with a series of triangular segments bounded along their sides and alternately disposed so that their apexes alternate from one edge (the longer side) of the sheet element to the opposite edge (the shorter side); in addition the plane of each triangular segment forms an obtuse angle with respect to that of the next succeeding one, and alternates in direction with respect to successive ones. In a preferred method of making same, a flat sheet blank, preferably in the shape of a circle, is bent along a plurality of lines in alternate directions to form the triangular segments. In another method, a plurality of separate triangular segments are fixed together, as by welding, to form the curved sheet element.

3,708,061
ALBUM FOR FILMSTRIP STORAGE
Marshall Weingarden, 60 East 8th Street, New York, N.Y., and Harold H. Levitt, 313 Rutland Avenue, Teaneck, N.J.
Filed Nov. 17, 1971, Ser. No. 199,527
Int. Cl. B65d 25/54, 1/36
U.S. Cl. 206—45.34 4 Claims



A book-like album which, in practice, stores filmstrip cans such that the identification thereon is visible through a transparent flap, or so-called spine, of the album and thus also serves as identification of the album.

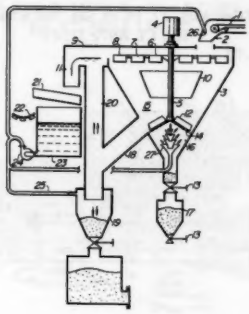
3,708,062
EYEHOOK FASTENER AUTOMATIC INSTALLING MACHINE
Gabor Z. Feldheim, and Andrew Feldheim, both of 690 George Street, Sydney, New South Wales, Australia
Filed May 19, 1970, Ser. No. 38,799
Claims priority, application Australia, May 26, 1969, 55552/69
Int. Cl. B65d 73/00, 85/62
U.S. Cl. 206—56 DF 2 Claims



A U-shaped garment fastener adapted to be readily self-loaded into a clenching press. The components of a complete fastener are secured to a backing material so that two chains of them can be placed in a magazine and fed into the press. Both halves of the fastener are similar to eliminate duplicate parts.

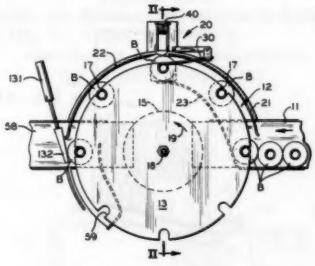
3,708,063
METHOD AND APPARATUS FOR WASHING WOOD CHIPS
Hanaya Morimasa, Kure-shi, Hiroshima Pref., Japan, assignor to Toyo Pulp Co., Ltd., Tokyo, Japan
Filed Sept. 11, 1970, Ser. No. 71,622
Int. Cl. B03b 7/00
U.S. Cl. 209—3 9 Claims

Wood chips including foreign substances are made to naturally sink in a washing tank. While the floating chips are taken out from the tank, the sinking chips and the foreign substances are separated by a submerged screen so that only the small sand may fall through the screen. The sinking chips and other foreign substances are brought into a selection tube in which



an upward stream is provided. By the upward stream, the wood chips are moved up for recovery and only the foreign substances sink through the stream.

3,708,064
METHOD AND APPARATUS FOR INSPECTING DIELECTRIC MEMBERS
Kent L. Schepler, and Larry J. Schmersal, both of Toledo, Ohio, assignors to Owens-Illinois, Inc.
Filed March 16, 1971, Ser. No. 124,680
Int. Cl. B07c 5/08
U.S. Cl. 209—73 16 Claims

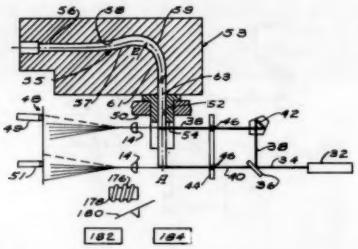


In a preferred embodiment of the invention a method and apparatus for inspecting glass containers is described. A high frequency signal is transmitted at an inspection station. The transmitted high frequency signal is received and a detection output is provided which is related in amplitude to the amplitude of the received signal. The steady state detection output is sensed when no container is at the inspection station. A wall of a container is moved past an inspection position to vary the amplitude of the received signal and thus the detection output in accordance with the thickness of the wall at the inspection position. The varying detection output is compared with the steady state detection output to derive a thickness signal proportional to the thickness of the moving wall. The thickness signal is compared with a reject reference signal to detect a non-acceptable container. The magnitude of the reject reference signal is controlled by the steady state detection output to automatically compensate for long term component and ambient variations.

3,708,065
MEASURING AND SORTING APPARATUS

Louis J. Aull, Atlanta, Ga., and William E. Gritt, Indianapolis, Ind., assignors to Amsted Industries Incorporated, Chicago, Ill.

Filed Aug. 27, 1970, Ser. No. 67,434
Int. Cl. B07c 5/342
U.S. Cl. 209—73 7 Claims

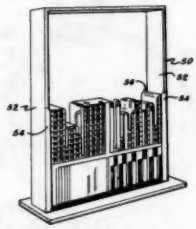


A method of and an apparatus for measuring and sorting articles is provided having a plurality of sensors that are responsive to the presence and absence of light. Non-diverging coherent light is projected against the sensors. The articles to be measured and/or sorted are guided through the light intermediate the source of the light and the sensors. In response to the sequence in which the sensors are shaded, a given dimension of the article may be readily determined. Based upon the determined dimension, each article may be deflected into one of a number of containers.

3,708,066
INDEX CARD MEANS

Roy Lee Elliott, 2101 Woodland, Wichita, Kans.

Filed Feb. 1, 1971, Ser. No. 111,432
Int. Cl. B07c
U.S. Cl. 209—80.5 6 Claims



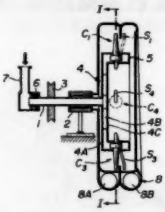
An index card has a portion with a plurality of apertures and slots therethrough with corresponding portions to receive indicia corresponding to the plurality of apertures and slots. Another portion has indicia identifying indicia of the first portion with an associated second plurality of groups of apertures corresponding to indicia of the second portion. The index card is used in a system of similar index cards and indicia codes to identify, by collecting similar items, groups of information that are different yet have similarly classifiable characteristics.

3,708,067
SEPARATING APPARATUS

Alain Ferdinand Javet, Geneva, Switzerland, assignor to The Battelle Development Corporation, Columbus, Ohio

Filed June 29, 1970, Ser. No. 50,509
Int. Cl. B04c 5/28
U.S. Cl. 209—211 8 Claims

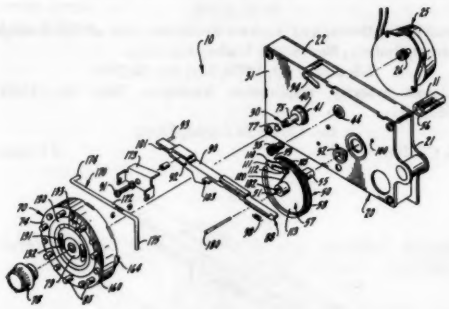
Apparatus for separating a suspension into at least two fractions of different densities, which comprises one or more cyclones, each mounted for rotation about an axis spaced therefrom and oriented transversely of said axis, and each having an inlet adapted to communicate with a source of said suspension, a first outlet for discharging the lighter of said two fractions and a second outlet for discharging the heavier of said two fractions and which is more distant from said axis than the first outlet.



3,708,068
TIMER

Edward J. Tischler, St. Paul, Minn., assignor to Ecodyne Corporation

Filed Aug. 2, 1971, Ser. No. 168,241
Int. Cl. B01d 23/24
U.S. Cl. 210—140 15 Claims



A timing device for operating a valve assembly at a predetermined time on a given day or days. The device includes a timer dial and a pinion driven by separate gear trains from the same motor and constantly in operation. A valve assembly drive gear is connected to the pinion and rotated by it at said time through an actuator arm manipulated by the timer dial. The timer dial in addition includes means associated therewith to independently manipulate a selected portion of the valve assembly at a predetermined time on a given day or days.

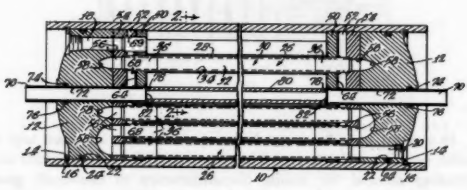
3,708,069
REVERSE OSMOSIS MEMBRANE MODULE AND APPARATUS USING THE SAME

George B. Clark, Waukesha, Wis., assignor to Aqua-Chem, Inc.

Filed Aug. 13, 1970, Ser. No. 63,561
Int. Cl. B01d 31/00
U.S. Cl. 210—181 12 Claims

A reverse osmosis membrane module and a self-contained unit for separating the components of a liquid mixture by reverse osmosis utilizing the same. The module includes an elongated tubular casing having substantial hoop strength which receives a plurality of elongated tubular membrane structures. Within the casing are a plurality of thin-walled

tubes each surrounding and receiving an associated one of the tubular membranes. According to one embodiment, the outer surface of each thin-walled tube is configured as a hexagon and the tubes are interfitted within the casing with each other so that each is in contact with another tube or the casing about its entire peripheral extent. Thus, the pressure within adjacent tubes tends to balance out thereby obviating any requirement for support tubes for the membranes of substantial strength. The self-contained unit employs such a membrane module and within the casing there is further included a motor driven pump which receives a liquid mixture and elevates the pressure of the same to reverse osmosis operating pressures. Each of the membrane cells defined by the tubular membranes has one open end adjacent a high pressure area which receives the liquid mixture under high pressure and another open end adjacent a second high pressure area to permit recirculation of the liquid mixture. Within the first high pressure area there is provided an impeller which is driven by the pump motor together with baffles which operate to recirculate the liquid mixture through the membrane cells. The structure also includes an accumulator for dampening pressure pulses within the casing caused by operation of the pump.



3,708,070

OIL SKIMMER

Edwin A. Bell, Lake Charles, La., assignor to Cities Service Oil Co.

Filed Oct. 2, 1970, Ser. No. 77,596
Int. Cl. C02b 9/02
U.S. Cl. 210—242 **6 Claims**

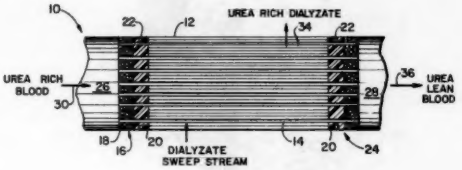
In order to recover surface oil from a body of water a floating oil skimmer barge is provided with a series of compartments, beginning at the prow of the barge, inflow to each compartment being effected over a respective floating baffle pivotally mounted at its bottom edge to swing into its compartment to a depth determined by the pressure differential across the baffle. Position of the baffle is controlled by pumping water at controlled rates from the bottom of the downstream end of each compartment to thereby cause an effective surface flow between compartments. Surface oil builds up in depth at the downstream end of the last compartment and is collected, substantially free of water, in a recovery chamber which is also provided with a floating baffle and from which oil is pumped at controllable rates.

3,708,071

HOLLOW FIBER MEMBRANE DEVICE AND METHOD OF FABRICATING SAME

Richard P. Crowley, Wellesley Hills, Mass., assignor to Abcor, Inc., Cambridge, Mass.

Filed Aug. 5, 1970, Ser. No. 61,307
Int. Cl. B01d 31/00
U.S. Cl. 210—321 **26 Claims**



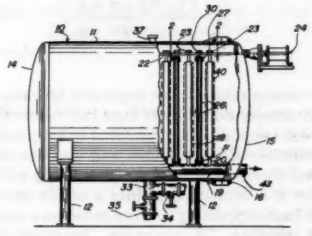
A method for preparing one or more terminal headers containing capillary fibers encased therein for use in a membrane device. The ends or a loop portion of a plurality of capillary fibers are immersed in a foam material. The foam material sets, encasing the capillaries therein forming a header. The header is then severed, exposing the open ends of the capillaries.

3,708,072

METHOD AND APPARATUS FOR CONTROLLING FILTER CAKE THICKNESS AND FOR COMPRESSING A FILTER CAKE

Henry Schmidt, Jr., Hinsdale, Ill., assignor to Industrial Filter & Pump Mfg. Co., Cicero, Ill.

Filed Oct. 13, 1970, Ser. No. 80,270
Int. Cl. B01d 35/20, 25/38
U.S. Cl. 210—332 **19 Claims**



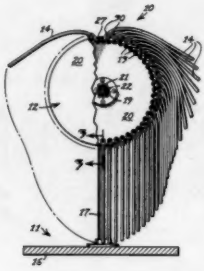
A filter cake deposited on a porous surface is compressed thereagainst by a flexible sheet mounted adjacent the porous surface on the upstream side thereof so that when the filter cake builds up against the sheet it is forced by the hydraulic pressure of the liquid being filtered toward the cake to thereby automatically compress the cake when it becomes sufficiently thick to reach the sheet.

3,708,073

ROTARY DISPLAY STAND

Edward L. Davis, 814 North Bragg Avenue, Lookout Mountain, Tenn.

Filed Feb. 17, 1971, Ser. No. 116,104
Int. Cl. A47f 7/16
U.S. Cl. 211—47 6 Claims



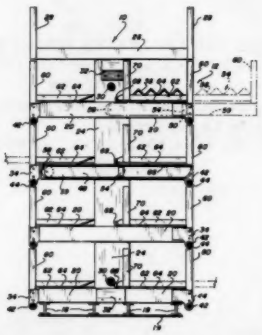
A rotary display stand including a standard, a rotary support member, and depending article holders mounted in a circumferential path on said support member and adapted to freely swing relative to said support member.

3,708,074

STEEL RACKING APPARATUS

Thomas D. Fahey, and Samuel Schlagel, both of Denver, Colo., assignors to Steel Storage Systems, Inc., Commerce City, Colo.

Filed July 15, 1971, Ser. No. 162,941
Int. Cl. A47f 3/96, 5/00
U.S. Cl. 211—151 19 Claims



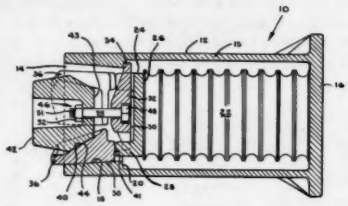
This invention relates to an apparatus for racking structural steel stock characterized by at least two upstanding partition-forming wall sections interconnected in longitudinally-spaced parallel relation. Each of these wall sections carries one or more upwardly-opening saddles which, along with the carriage atop which it is mounted, defines a cradle movable relative thereto in load-supporting relation between a retracted and an extended position. A common longitudinally-extending crankshaft interconnects two or more of the longitudinally-aligned cradles together for simultaneous movement so as to produce therewith an open-ended top-loading drawer adapted to support structural steel members and the like at spaced points therealong. In the preferred embodiment, the cradle carriages rest atop the crankshaft in frictional engagement therewith while in two alternative embodiments, the crankshaft is operatively connected to the cradle by a meshed rack and pinion. In one of the latter embodiments, a separate crankshaft is provided for each drawer while in the other an axially-movable shaft is selectively connectable to a pair thereof.

3,708,075

WEDGE LOCK DEVICE

Laurence Treffle LaBelle, Downers Grove, Ill., assignor to Miner Enterprises, Inc.

Filed Aug. 5, 1971, Ser. No. 169,420
Int. Cl. B61g 9/10
U.S. Cl. 213—22 3 Claims



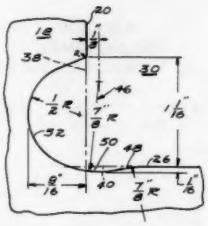
In a draft gear having a housing which has an open top, a solid bottom and a tapered bore which defines a shoulder extending around the inside circumference of the draft gear housing, a locking piece which has a hub portion, and outwardly extending fingers therefrom which are positioned beneath and engage the shoulder of the draft gear housing. The draft gear is maintained in assembled operation by a securing means which has a shank portion which extends upwardly from beneath the hub portion of the locking piece through a hole provided in the base of the wedge and which has a nut secured on the threaded end thereof.

3,708,076

RAILWAY COUPLER YOKE

Robert P. Radwill, Oak Lawn, Ill., assignor to Amsted Industries Incorporated, Chicago, Ill.

Filed Aug. 2, 1971, Ser. No. 168,179
Int. Cl. B61g 9/04, 9/20
U.S. Cl. 213—67 R 10 Claims



A new fillet for the intersection of the strap and the rear follower bearing of a yoke is provided having a compound radial surface and an undercut portion. The curve is designed to reduce stress concentration and manufacturing difficulties in this area. The undercut portion removes metal from the draft gear pocket and thereby eliminates notching of the strap.

3,708,077

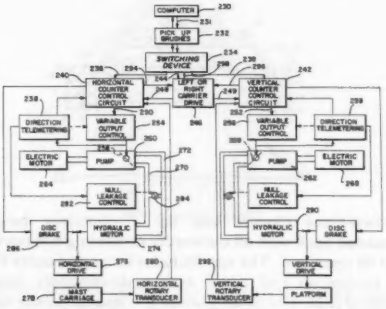
DEVICE MEANS FOR A VEHICLE IN A WAREHOUSING APPARATUS

Kenneth A. Richens, Salt Lake City; Scott C. Grover, Bountiful; James K. Allred, Salt Lake City, all of Utah, and James H. Shook, Lakewood, Colo., assignors to Eaton Yale & Towne Inc., Cleveland, Ohio

Division of Ser. No. 832,036, May 5, 1969, Pat. No. 3,632,001.
This application June 11, 1971, Ser. No. 152,302
Int. Cl. B65g 1/06
U.S. Cl. 214—16.4 A 10 Claims

Warehousing system apparatus has a storage rack with several vertically and horizontally related storage elements. A

mast is moved horizontally on rails parallel to the face of a storage rack, and a platform moves vertically along the mast in response to signals from a three-brush signal wire pickup on a control wire strung along the rack. Vertical and horizontal hydraulic drives and controls are independent so that the platform may fly or move diagonally in the shortest line between locations in the storage rack. Electric motors constantly



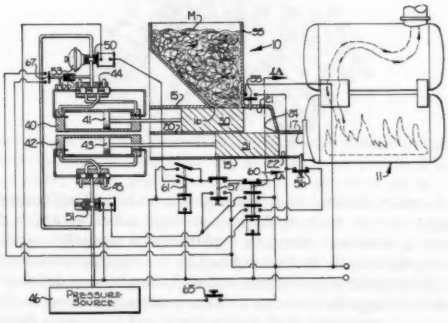
operate hydraulic pumps; pump output is controlled by stepping motors having telemetering switches to indicate pumping direction. A positive neutral band is provided in the hydraulic system for better drive control. A carrier which is driven from the platform into the rack has a cam means to change the position of load driving lugs each time the carrier is driven to a maximum displacement from the platform.

3,708,078

BATCH RAM FEEDING APPARATUS

Richard F. Clements, Charlotte, N.C., assignor to Environmental Control Products, Inc., Charlotte, N.C.

Filed Aug. 26, 1971, Ser. No. 175,275
Int. Cl. F23k *3/00*
U.S. Cl. 214—23 **7 Claims**



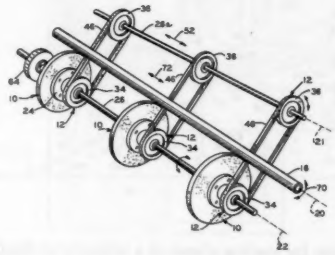
A batch ram feeding apparatus for feeding of material to an incinerator or other mechanism and characterized by being constructed to feed batches of comparatively equal weight regardless of variations in sizes or compositions of the material. The apparatus comprises a housing having a material receiving opening in the top and a material dispensing opening in the front and horizontally-extending upper and lower internal compartments with a communicating passageway therebetween. The apparatus further includes reciprocating rams positioned in each of the compartments and drive means for individually driving the rams to receive a batch of material in the upper compartment, compact the batch and allow it to drop into the lower compartment where it is pushed out of the dispensing opening.

3,708,079

SUPPORT FOR ROTATING AND ADVANCING CYLINDRICAL MEMBERS

Joseph T. Wloszek, Seven Hills, Ohio, assignor to Custom Machine, Inc., Cleveland, Ohio

Filed Feb. 12, 1971, Ser. No. 114,998
Int. Cl. B65h *51/00*
U.S. Cl. 214—338 **8 Claims**



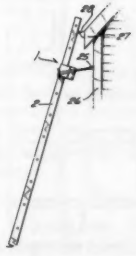
Apparatus for simultaneously rotating and longitudinally advancing cylindrical members through a test stand. The member is supported in a trough formed by a plurality of axially spaced idler rollers mounted on a first common shaft and a plurality of spaced belts each rotating over a pair of spaced pulleys, with one pulley of each pair being mounted on the first common shaft and the other pulley of each pair being mounted on a second common shaft parallel to the first shaft. The pulleys have a self aligning mounting on their respective shafts such that the plane of rotation of the pulleys may be at an angle other than perpendicular to the axis of their supporting shafts. One of the shafts is axially adjustable relative to the other so as to change the angle of the line of movement of all the belts relative to the axis of the shafts. One of the shafts is driven and has a driving connection with at least some of the pulleys mounted thereon. By relatively moving the two shafts and thus changing the angle of the belts relative to the axes of the shafts, a cylindrical member supported in the trough may be made to move axially forward backward, or remain stationary while being rotated at a constant speed.

3,708,080

LADDER BRACKET

Alvin O. Schlei, 3328 S. Indiana Avenue, Milwaukee, Wis.

Substitute for Ser. No. 641,321, May 25, 1967. This application Nov. 23, 1970, Ser. No. 91,962
Int. Cl. E06c *7/48*
U.S. Cl. 182—214 **1 Claim**

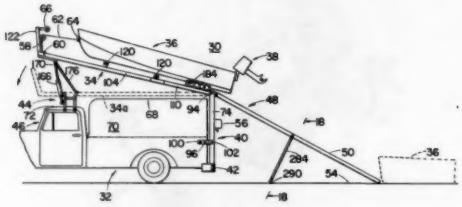


Separate brackets are adjustably clamped to the corresponding side rails of a ladder to interlock with a selected rung of the ladder, and a leg is pivotally carried by each bracket and adjustably secured thereto at a selected angle to extend toward and engage the side of a building or other support with the ladder spaced from the building by said legs.

3,708,081
BOAT LOADING APPARATUS

Paul C. Schladenhauffen, 212 Dustman Road, Bluffton, Ind.

Filed March 30, 1970, Ser. No. 23,763
Int. Cl. B60r 9/00
U.S. Cl. 214—450 8 Claims

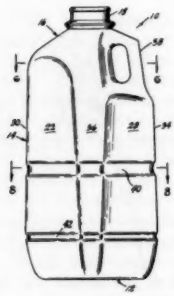


Apparatus for loading a boat on a vehicular or fixed support structure, such as a camper or a dock. An elongated carrier frame is provided having forward and rear ends. An upstanding supporting frame is provided having upper and lower ends, the lower end being rigidly mounted on the support structure. The rear end of the carrier frame is pivotally connected to the supporting frame adjacent the upper end thereof with the carrier frame extending forwardly therefrom and being pivotally movable between a horizontal, boat-carrying position and a forwardly and upwardly inclined, boat-loading position. A pair of elongated, boat-loading rails is provided having forward and rear ends. The rails have a loading position with their forward ends removably and pivotally connected to the supporting frame adjacent its upper end and being inclined rearwardly and downwardly therefrom, with their rear ends being supported by the ground. A winching system is provided for hauling the boat up the rails in their loading position and onto the carrier frame in its loading position. The rails have a stowed position in which they are carried by and secured to the carrier frame.

3,708,082
PLASTIC CONTAINER

Richard L. Platte, Ann Arbor, Mich., assignor to Hoover Ball and Bearing Company

Filed March 29, 1971, Ser. No. 129,021
Int. Cl. B65d 23/10
U.S. Cl. 215—1 C 13 Claims

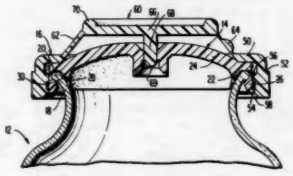


A relatively thin walled plastic bottle or jug having a high strength to weight ratio which has its walls shaped to minimize or eliminate harmful deformation during filling or pouring of liquids, and which has an attractive appearance when filled with liquid.

3,708,083
CLOSURE FITMENT

Erich W. Gronemeyer, 2100 South Ocean Lane, Point of Americas - Apt. 206, Fort Lauderdale, Fla., and Louis F. Kutik, 8720 S.W. 23rd Place, Fort Lauderdale, Fla.

Filed Nov. 25, 1970, Ser. No. 92,601
Int. Cl. B65d 51/08
U.S. Cl. 215—41 43 Claims

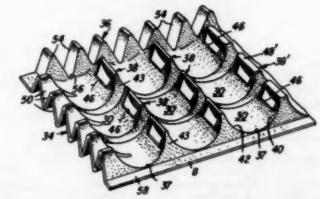


A two-piece closure cap for a container having an unthreaded neck with an outwardly projecting rim portion adjacent its open end. The cap includes inner and outer fitments each having an end panel with a downwardly depending peripheral skirt. The outer fitment is telescoped onto the inner fitment, with the inner surface of the skirt of the outer fitment engaging and camming the inner fitment skirt inwardly beneath the outwardly projecting rim of the neck to releasably retain the cap on the container. Vent openings formed and the inner fitment panel are closed by seal means on the outer fitment when the closure cap is installed on the container.

3,708,084
PACKING FOR FRAGILE ARTICLES

Kenneth D. Bixler, Huntington, N.Y.; Charles J. Chaplin, Stamford, N.Y.; Richard F. Reifers, New Canaan, Conn. and William S. Peppler, Chappaqua, N.Y., assignors to Diamond International Corp., New York, N.Y.

Filed Jan. 29, 1971, Ser. No. 110,981
Int. Cl. B65d 25/12, 85/42
U.S. Cl. 217—26.5 8 Claims



A unitary molded packing element used in packing cases for fragile articles such as fluorescent light tubes in which the packing element comprises a plurality of mutually parallel, elongated arcuate sockets defined by apertured coplanar ribs; in which outer side margins and end margins are defined by hollow, triangular elements which are relatively strong in compression and permit both longitudinal and transverse flexure of the packing elements; and in which the separator elements include notched tabs which are interlockable when in inverted pairs.

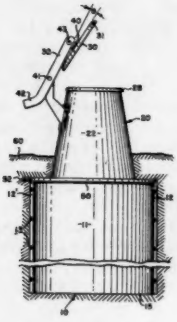
3,708,085
ORGANIC GARBAGE TREATMENT RECEPTACLE

Orville C. Bumpas, P. O. Box 6802, North Augusta, S.C.

Filed Aug. 18, 1971, Ser. No. 172,633
Int. Cl. B65d 43/16
U.S. Cl. 220—18 6 Claims

An underground receptacle for bacterial dissolution of organic food wastes comprised of a below-grade treatment chamber fed by a conical entrance conduit extending above

the ground surface. A garbage receiving portal at the upper end of the conduit is covered by a lid and has a substantially airtight portal-to-lid seal. The lid is raised and lowered by a foot actuator which cooperates with it to minimize seal wear



and provide positive seating and sealing action. The entrance conduit is detachably mounted upon the underground chamber and provision is also made to facilitate shipment and assembly of the treatment chamber.

3,708,086

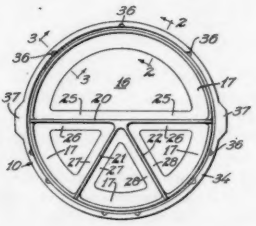
DIVIDED PLATE COVER AND PLATE

Albert E. Colato, St. Paul, Minn., assignor to Plastics, Inc., St. Paul, Minn.

Filed Dec. 28, 1970, Ser. No. 101,958

Int. Cl. B65d *1/24*

U.S. Cl. 220—20 **8 Claims**



A two part plate and cover is made up of a divided or compartmented cover, and a serving plate. Food is prepared into the divided cover, and the serving plate is attached thereto as a cover. The food is normally quick frozen or can be packed either chilled or heated and stored until delivered to the user. The serving plate is raised into a heating position in which steam may vent, and the assembly is heated. The serving plate is again sealed relative to the divided cover, inverted, and the divided cover is removed to leave the food nicely distributed on the serving plate. The structure is sealed adequately for storage, and when partially opened, the plate provides adequate venting for food reconstitution.

3,708,087

NEWSPAPER DISPENSER

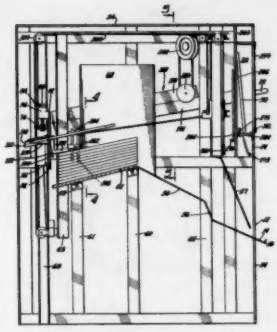
David Schonthal, 1572 Orchard Drive, Apt. 21-H, Santa Ana, Calif.

Filed Oct. 1, 1970, Ser. No. 77,184

Int. Cl. G07f *11/22*

U.S. Cl. 221—110 **31 Claims**

A machine for dispensing publications one at a time. The machine is coin operated and is capable of dispensing newspapers from a stack which can be loaded in bulk. The newspapers are biased away from the dispensing outlet by holddown members, an inclined support and side grippers. The publication contacting assembly is driven by forces



directed along parallel lines inclined upwardly from the horizontal. The pusher plate follows the newspaper contour. It is preferably entirely mechanical but could include an electrical drive system.

3,708,088

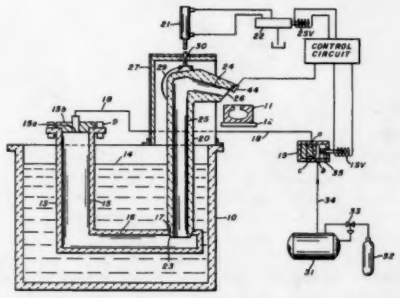
APPARATUS FOR METERING LIQUID FLOW DISCHARGE

Elroy W. Lesher, Reading, Pa., assignor to Albany International Corp., Albany, N.Y.

Filed Nov. 20, 1970, Ser. No. 91,480

Int. Cl. B22d *37/00*

U.S. Cl. 222—70 **3 Claims**



Apparatus for repetitively dispensing predetermined equal amounts of liquid metal from a container under uniform pressure in which the time of actual discharge from the container is maintained constant by detecting the initiation of discharge and terminating pressure application at a fixed time interval after initiation of discharge.

3,708,089

GAS GENERATOR FOR LIQUID SPRAYERS

Ronald W. Holder, Bryan, and Virgil D. Ferguson, McGregor, both of Tex., assignors to North American Rockwell Corporation

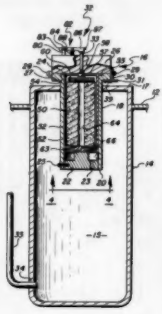
Filed Jan. 11, 1971, Ser. No. 105,196

Int. Cl. B65d *83/00*

U.S. Cl. 222—396 **9 Claims**

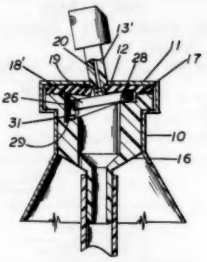
A source of regulated gas pressure is directed within a liquid

sprayer tank provided by a small gas generator package adjacent the tank which, upon ignition, dissipates its energy into



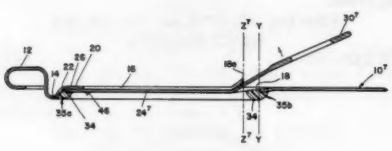
a hog gas plenum and thence into the tank, thereby providing sufficient pressure, upon demand, to expel liquid therefrom.

3,708,090
VALVE FOR PRESSURIZED LIQUID DISPENSER
Arthur M. Harris, 135 Southwood Road, Fairfield, Conn.
Filed May 21, 1970, Ser. No. 39,399
Int. Cl. B65d *83/14*
U.S. Cl. 222—402.22 **8 Claims**



A valve assembly for aerosol dispensers having, in an apertured valve socket of a pressurized aerosol container, a valve seat of resilient material such as rubber with an aperture in registry with that of the valve socket; a substantially rigid valve disc of which the the upper surface forms a seal when in contact with the valve seat, having a tubular stem integral with the disc and extending through its aperture, adapted to receive a conventional spray nozzle on its outer end—the bore of the stem terminating at the valve disc and communicating with one or more radial ports normally closed by contact with the inner surface of the bore through the valve seat; and a valve housing of substantially rigid material, clamped by appropriate crimping or the like of the side walls of the valve socket against the edges of the valve seat to form a seal therewith, said housing having an inner chamber of somewhat smaller cross section than the valve disc with a connection at its lower end for a dip tube extending to the base of the container, and a counterbore adjacent the valve disc and large enough to receive the latter, the base of the counterbore having a fulcrum support normally holding the valve disc against the valve seat and located within the limit of peripheral contact of the disc with the valve seat, and a cut-away portion—such as a plane surface inclined to and intersecting the axis of the valve stem and extending from said fulcrum support to the opposite side of the valve housing, into which the valve disc may tilt by rotation about the fulcrum support to open a passage from the interior of the valve housing between the disc and valve seat to a radial port at the base of the valve stem, through which the pressurized contents of the container are released through the dip tube, valve housing, valve stem and nozzle; and resilient means—either the resilient valve seat on the side of the fulcrum support opposite said cut-away portion if said support is spaced inwardly from the limit of peripheral contact of the disc and valve seat (such that tilting of the disc about the fulcrum support toward the cut-away portion of the valve housing compresses the valve seat on the opposite side of said support), and/or a resiliently flexible leg extending downward from one side of the valve disc with its outer end bearing upon the cut-away portion of the base of the valve housing counterbore (especially when the said cut-away portion has a plane surface inclined to the axis of the valve stem axis)—such resilient means urging the valve disc when displaced by tilting of the valve stem and disc around the fulcrum support to contents-releasing position to return the same to sealing contact with the valve seat. When such a resiliently flexible leg is provided, the fulcrum support can be located at the peripheral limit of contact of the valve disc with the valve seat.

3,708,091
CAN END WITH BONDED SEAL SLIDE
Donald L. Douty, Franklin Township, Westmoreland County, Pa., assignor to United States Steel Corporation
Division of Ser. No. 61,384, Aug. 5, 1970, Pat. No. 3,622,055.
This application May 26, 1971, Ser. No. 146,945
Int. Cl. B65d *47/10*
U.S. Cl. 222—541 **54 Claims**



Another can end is provided with a pour opening and has a pour width. The pour opening is provided with an entry aperture at one end of the pour opening. The entry aperture has a slide width greater than the pour width. The can end has a can end lapping portion and a can end sealing portion adjacent the pour opening and a plane of bulge strength adjacent the entry aperture. A slide is adapted to pass through an entry aperture and has a slide lapping portion, a slide sealing portion and a protruding portion extending from the entry aperture. The slide lapping portion is adapted to register with the can end lapping portion, and the slide sealing portion is adapted to register with the plane of bulge strength. A pull tab has a connection to the side on the protruding portion. Engaging means engage the can end lapping portion to press the can end lapping portion into intimate contact with the slide lapping portion and the slide sealing portion into intimate contact with the plane of bulge strength. A pressure barrier material for sealing the intimately contacting can end sealing portion and the slide lapping portion and also for sealing the intimately contacting plane of bulge strength and the slide sealing portion is provided. The pressure barrier material is bonded to the can end sealing portion with a first predetermined shear strength and to the slide lapping portion and to the plane of bulge strength with a second predetermined shear strength less than the first predetermined shear strength. The pull tab has a plane of weakness on one side of the connection to the slide. The connection is disposed outwardly from the plane of weakness. The pull tab is movable away from the plane of bulge strength to break the bond between the slide and the pressure barrier material adjacent the plane of bulge strength so that the pressure barrier material functions as a guide. The pull tab is then movable away from the entry aperture to break the bond between the pressure barrier material adjacent the

can end sealing portion and the slide lapping portion so that pressure barrier material adjacent the can end sealing portion functions as a guide for the slide.

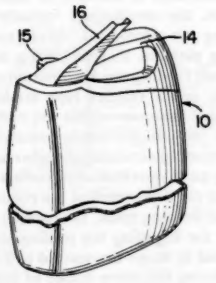
IV. Yet another can end is provided with a pour opening having a pour width. The pour opening is provided with an entry aperture at one end of the pour opening. The entry aperture has a slide width greater than the pour width. The can end has a can end lapping portion and a can end sealing portion adjacent the pour opening and a plane of bulge strength adjacent the entry aperture. A slide has a pivot on the can end, is adapted to pass through the entry aperture and has a slide lapping portion and a slide sealing portion. The slide lapping portion is adapted to register with the can end lapping portion, and the slide sealing portion is adapted to register with the plane of bulge strength. A pull tab has a connection to the slide. Engaging means engage the can end lapping portion to press the can end lapping portion into intimate contact with the slide lapping portion and the slide sealing portion into intimate contact with the plane of bulge strength. A pressure barrier material is used for sealing the intimately contacting can end sealing portion and the slide lapping portion and also for sealing the intimately contacting plane of bulge strength and the slide sealing portion. The pressure barrier material is bonded to the can end sealing portion with a first predetermined shear strength and to the slide lapping portion and to the plane of bulge strength with a second predetermined shear strength less than the first predetermined shear strength. The pull tab is rotatable about the pivot to break the bond between the slide lapping portion and the pressure barrier material adjacent the can end sealing portion so that the pressure barrier material adjacent the can end sealing surface now functions as an exit and reclosure slide guide. The pull tab causes breakage of the bond between the pressure barrier material adjacent the plane of bulge strength and the slide sealing portion and causes the slide to move through the entry aperture on the pressure barrier material adjacent the plane of bulge strength.

3,708,092

REMOVABLE FUNNEL FOR CONTAINERS

John S. Frazer, Pequannock, N.J., assignor to Union Carbide Corporation, New York, N.Y.

Filed Jan. 20, 1971, Ser. No. 107,892
Int. Cl. B65d *5/74*
U.S. Cl. 222—567 **2 Claims**



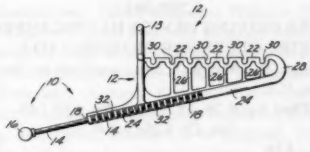
The combination of a container for a liquid or a particulate solid, having a handle and a pouring spout, and a funnel which is adapted to be removably secured to the spout when pouring from the container and to be fitted over and become part of the handle when not in use.

3,708,093

AUTOMOBILE HANGER BRACKET

Nathaniel C. Toms, II, P.O. Box 7631, Courthouse Station, Asheville, N.C.

Filed May 17, 1971, Ser. No. 143,904
Int. Cl. B60r *7/00*
U.S. Cl. 224—42.45 A **8 Claims**



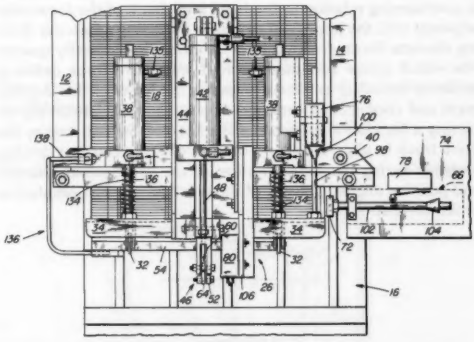
The bracket includes a frame adapted to be suspended from the hook conventionally provided within an automobile above each side window, and further includes a stabilizing rod carrying an abutment member and readily adjustable relative to the frame and the automobile window to securely position the abutment member against the window irrespective of the latter's inclination or spacing from the hook. The abutment member preferably comprises either a cylindrical rubber bumper or a suction cup. The bracket is so constructed as to possess desirable safety features.

3,708,094

APPARATUS FOR SEPARATING BOUND BOOKS

Karl H. Koether, Suffern, and Arthur J. Dillin, West Nyack, both of N.Y., assignors to H. W. Wilson Company, Bronx, N.Y.

Filed March 13, 1970, Ser. No. 19,226
Int. Cl. B26f *3/00*
U.S. Cl. 225—103 **8 Claims**



Method and apparatus for separating books from an interconnected book pad in which the books have been joined together along one edge by interconnecting threads which have been severed but left engaged either in the loops of the terminal stitches of the adjacent book or in the needle punched holes of the first signature of the adjacent book. The method comprises moving the book to be separated transversely relative to the pad until the interconnecting threads are extracted and the book is separated from the pad. The apparatus for accomplishing the method includes a device for

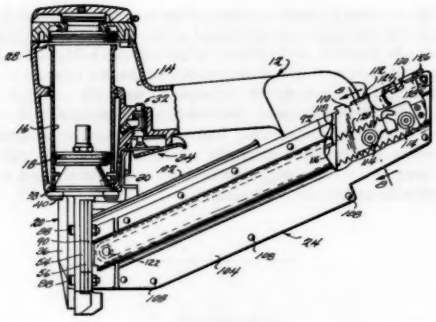
detecting the position of the book at the leading edge of the pad and a reciprocating plunger which drives the book transversely relative to the pad whenever its leading edge is moved to a predetermined location. The apparatus also includes a kicker arm for moving separated books away from the pad to facilitate their further processing.

3,708,095

FASTENER DRIVING DEVICE HAVING IMPROVED STRUCTURE FOR DRIVING NAILS

Peleg B. Briggs, Jr., Mystic, Conn., assignor to Textron Inc., Providence, R.I.

Filed April 28, 1971, Ser. No. 138,148
Int. Cl. B25c 1/04
U.S. Cl. 227—126 **11 Claims**



A fastener driving device having improved structure for driving successive leading nails from a package of nails detachably secured together in a formation consisting of a leading nail, a trailing nail and a row of nails therebetween, each nail of the row having a shank disposed in generally abutting relation to the shanks of the nails adjacent thereto and a head on one end of the shank which extends laterally outwardly thereof on opposite sides of the row and forwardly in overlapping relation to the head and shank of the forwardly adjacent nail, the improved structure including a fastener driving element formed with forwardly extending laterally spaced ribs which insure adequate strength and drive track defining surfaces including guide surfaces for the fastener driving element and cooperating cam and stop surfaces for positively effecting a forward movement of the head of the nail within the drive track to align the shank thereof with the fastener driving element during the initial portion of the drive stroke thereof and positive aligned guiding of the head during the completion of the drive stroke.

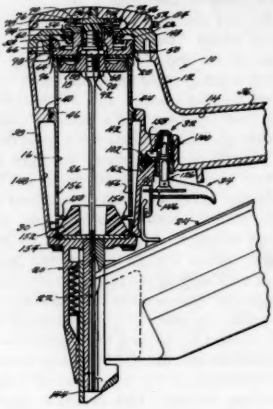
3,708,096

PNEUMATICALLY ACTUATED FASTENER DRIVING DEVICE WITH IMPROVED PISTON RETURN AIR SYSTEM

George E. Burke, Jr., Warwick, R.I., assignor to Textron Inc., Providence, R.I.

Filed April 28, 1971, Ser. No. 138,149
Int. Cl. B25c 1/04
U.S. Cl. 227—130 **9 Claims**

A single fire, pneumatically actuated fastener driving device having a pilot pressure actuated main valve and a plenum chamber return system, the movement of the mail valve into a position to effect the return stroke being dependent upon and



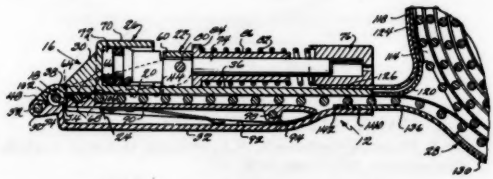
effected by the establishment of a pressure within the plenum chamber sufficient to insure a full return stroke.

3,708,097

NAIL FEED MECHANISM

Edward I. Fisher, Westerly, R.I., assignor to Textron Inc., Providence, R.I.

Filed March 18, 1971, Ser. No. 125,726
Int. Cl. B25c 1/04
U.S. Cl. 227—136 **3 Claims**



A mechanism for feeding successive fasteners from a fastener package into a position to be driven by a fastener driving element during the drive stroke thereof, the fastener package being in the form of a coil of circular headed nails flexibly interconnected in series with their shanks in spaced parallel relation, the mechanism including a nosepiece assembly defining an elongated drive track receiving the fastener driving element therein during the operating cycle thereof and a nail feeding track communicating laterally with the drive track, and a ratchet type feeding mechanism for feeding successive fasteners within the nail feeding track into the drive track, including a spring pressed feeding pawl carried by a reciprocating actuating member and a pivoted spring pressed holding pawl provided with surfaces for laterally substantially closing the drive track at the position of communication with the nail feeding track, the feeding pawl having a first feeding surface for engaging the trailing surface of the shank of the second nail to move the second nail forward in the nail feeding track during the drive stroke of the feeding pawl and hence the leading nail into the drive track due to its interconnection with the second nail, the feeding pawl also having a second feeding surface for engaging the last nail and moving it partially into the drive track, the juncture between the drive track and the nail feeding track having a cam surface for camming the partially positioned last nail fully into the drive track during the initial movement of the fastener driving element through its drive stroke.

3,708,098

ASSEMBLY FOR PLUGGING HEAT EXCHANGER TUBES

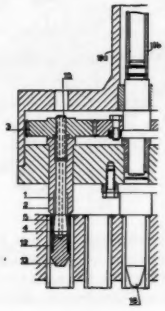
Walter Roznovsky, Vienna, Austria, assignor to Waagner-Biro AG, Vienna, Austria

Filed June 25, 1969, Ser. No. 836,297

Claims priority, application Austria, July 1, 1968, A 6294/68

Int. Cl. B23k *1/20*

U.S. Cl. 228—15 10 Claims



An assembly for plugging defective heat exchanger tubes. A plug which has a closed end and a deformable tubular wall extending therefrom surrounds with its tubular wall a deforming member which spreads the wall of the plug against an inner surface of a defective heat exchanger tube during withdrawal of the deforming member from the interior of the plug. A holding element holds the plug in position during withdrawal of the deforming member, and the latter is withdrawn by a pulling structure actuated through a transmission which is remotely operable from the exterior of the heat exchanger so that by guiding the assembly into the heat exchanger and positioning the plug in a defective tube it is possible to carry out the exterior of the heat exchanger operations which will fix the plug to the defective tube.

3,708,099

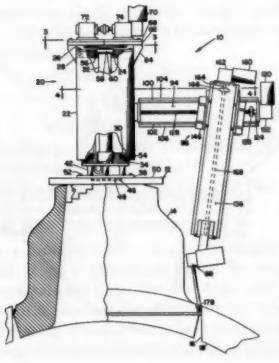
NOZZLE WELDER

Albert W. Nuccel, Harrisburg, Pa., assignor to Teledyne, Inc., York, Pa.

Filed Dec. 21, 1970, Ser. No. 100,040

Int. Cl. B23k *1/00*

U.S. Cl. 228—29 9 Claims



A nozzle welder self supported on a nozzle that is arranged to be circumferentially welded in an opening in the wall of a cylindrical vessel, the nozzle welder body being mounted for rotation on the nozzle and being provided with welding head support means arranged to be horizontally and vertically adjustable for orienting and maintaining the welding head in the circumferential weld groove between the nozzle and cylindrical vessel as the nozzle welder rotates.

3,708,100

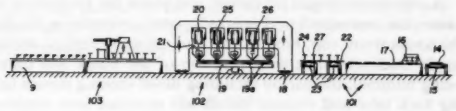
SYSTEM AND MACHINERY FOR CONSTRUCTION OF SHIP SECTIONS

Gerhard Buchfuhrer; Alfred Dudszus; Wilhelm Milles; Franz Lerche; Gunter Feyer; Manfred Krause; Josef Grunwald; Ulrich Hensel; Ingo Aust; Gunter Ewald; Walter Langer; Gunther Ludke; Karl-Georg Mohle; Joachim Oberlander; Horst Kowalski; Eckard Gatzke; Gerd Pernaux; Otto Schwank; Konrad Leschnewski; Reinhard Brose; Gunter Hartwig, and Ulrich Ploetz, all of Rostock, Germany, assignors to Veb Ingenieurburo Schiffbau, Rostock-Osthafen, Germany

Filed Nov. 5, 1970, Ser. No. 87,221

Int. Cl. B23k *37/04*

U.S. Cl. 228—47 17 Claims



A system for construction of ship sections. Mechanized devices are provided for assembling two-dimensional and three-dimensional sections from individual parts, under control of automatic and easily computerized mechanisms for forming, positioning and welding the sections. Sequences or systems of such devices and control mechanisms, for making flat or three-dimensional sections, are largely disposed in parallel, and the materials are conveyed in uniform directions along the parallel lines. Intermediate storage facilities are provided for compensation of slack in any of the parallel systems. Also provided is an ultimate receiving and finishing section, for work on elements from the preceding sections. Ship plates move along the several lines on trolleys equipped with suitable holders, and are processed by multiplicities of steel plate processing machines, basically known by themselves but specially arranged to suit the new system.

3,708,101

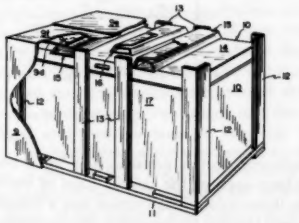
PACKAGING PAD

John S. McDaniel, White Bear Lake, Minn., assignor to Whirlpool Corporation

Filed Oct. 2, 1970, Ser. No. 77,612

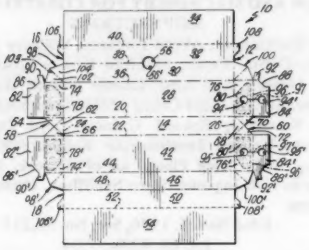
Int. Cl. B65d *5/60*

U.S. Cl. 229—14 C 5 Claims



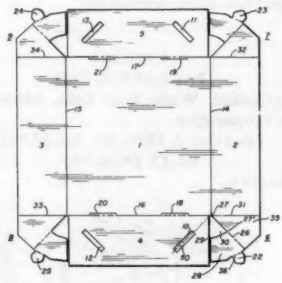
A clearance shock absorbing packaging pad comprising a paperboard blank foldable into a hollow elongated four sided structure having interlocked overlapped top parts that do not require gluing or other fastening means other than the interlocked portions and sloping sides to control compression of the pad under load conditions.

3,708,102
ONE-PIECE CARTON AND BLANK
Karl Engel, Pierrefonds, Quebec, Canada, assignor to Telesco Brophey Limited, Montreal, Quebec, Canada
Filed Jan. 21, 1971, Ser. No. 108,439
Int. Cl. B65d 5/24
U.S. Cl. 229—31 FS 4 Claims



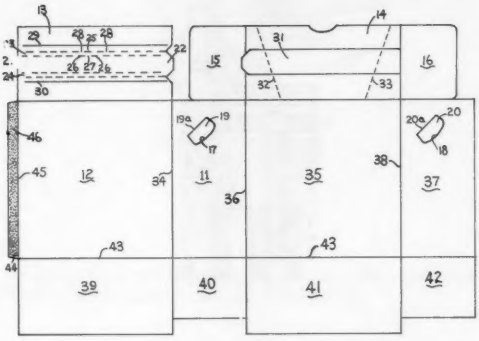
A one-piece hinged lid carton and blank for producing the same; the assembled and erected carton comprising double-thickness front, top, bottom and end, all symmetrical about a single thickness back wall; erection of the blank and carton being minimal; the carton including novel locking means having lock tabs and cutouts which are oriented into coplanar relationship when the carton is erected and including gusset panel assemblies orienting parts into assembled and locked relation; the carton being particularly adapted for packaging umbrellas wherein a carrying strap projects through apertured end walls.

3,708,103
CORNER CONSTRUCTION FOR A CORRUGATED BOX
Howard L. Evans, 606 Beacon Building, Tulsa, Okla.
Filed Aug. 31, 1971, Ser. No. 176,467
Int. Cl. B65d 5/26
U.S. Cl. 229—35 4 Claims



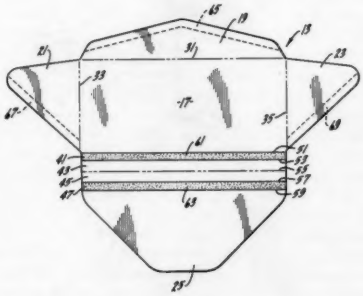
An improved corner construction for a corrugated paper box in which each of the corner flaps of the corrugated box comprise three score lines therein and a foldable interlocking tab attached thereto for insertion through slots in each of two end panels, the corner flaps with the foldable interlocking tabs being attached to each of two side panels; the corner flaps with foldable interlocking tabs being so constructed as to slide through the slots in end panels into a recess located in the main panel of the corrugated box thus enabling one section of the paper box to telescope easily into the other section of the paper box.

3,708,104
TEAR STRIP FOR A CARTON
Kenneth T. Buttery, Kalamazoo, Mich., assignor to Brown Company, Kalamazoo, Mich.
Filed Sept. 4, 1970, Ser. No. 69,748
Int. Cl. B65d 5/54
U.S. Cl. 229—51 TS 8 Claims



A carton including bottom, front, rear and end wall panels, at least one of said panels comprising a pair of overlapping flaps, a detachable tear strip defined by a severance line which comprises at least two rows of linearly positioned, substantially uniformly spaced cuts, cut score line in the outer of said two overlapping flaps coextensive with the severance line, and a cut scored portion provided on the inner of said overlapping flaps having substantially the same configuration as the tear strip. The tear strip is adhesively affixed to the cut scored portion, and the rows of cuts in the severance line are arranged so that the cuts of one row fully overlap the spaces of the adjacent row.

3,708,105
ENVELOPES
Steve Kovac, Route 2, P.O. Box 199, Mundelein, Ill.
Filed July 12, 1971, Ser. No. 161,522
Int. Cl. B65d 27/00
U.S. Cl. 229—75 2 Claims



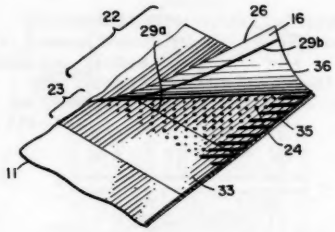
An envelope formed from a blank of paper which can be easily opened by an automatic letter opener without damaging the contents of the envelope.

3,708,106

BAG STRUCTURE AND METHOD OF PRODUCING

Cassius E. Sargent, Chicago, Ill., assignor to PPC Industries, Inc., Wheeling, Ill.

Filed May 17, 1971, Ser. No. 143,895
Int. Cl. B65d *33/16*
U.S. Cl. 229—62 **3 Claims**



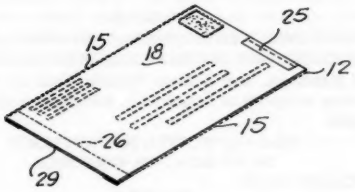
A bag structure of the flap type wherein the flap is tack heat-sealed for ready opening by virtue of heat-sealing webs together, wherein the heat-seal overlies a coating substantially resistant to union with thermoplastic material when the latter is in a molten state.

3,708,107

SEPARABLE MULTIPLE ENVELOPES OPENABLE WITHOUT TOOLS

Wilhelm A. Williams, 340 West 71st Street, New York, N.Y.

Filed Jan. 15, 1971, Ser. No. 106,730
Int. Cl. B65d *27/10*
U.S. Cl. 229—69 **4 Claims**



Envelopes attached to each other along their edges by perforated strips to facilitate multiple addressing of the envelopes in a typewriter. The envelopes can be separated by tearing along the perforations of the connecting strips. The envelopes have tear perforations along one side margin and a viewing aperture at the opposite side margin to facilitate opening and removal of the contents.

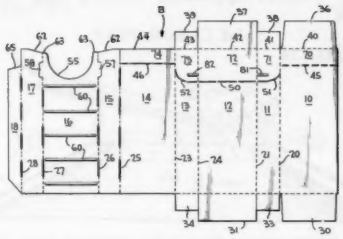
3,708,108

FLIP TOP CARTON

Charles W. Rosenburg, Jr., North Tonawanda, N.Y., assignor to F. N. Burt Company, Inc., Buffalo, N.Y.

Filed Sept. 22, 1971, Ser. No. 182,764
Int. Cl. B65d *5/66*
U.S. Cl. 229—44 CB **5 Claims**

The flip-top carton is double-walled throughout its four sides and made from a one-piece blank having eight wall panels and a terminal glue flap. The first four walls and the adjacent glue flap form an inner box structure and the other four panels provide a wrap-around outer box structure. All of the eight panels being of approximately the same height, making a slight allowance for proper fitting of the inner structure within the outer one. The outer front panel and the outer side panels are provided with transverse tear lines spaced from the upper edges and both the inner and outer back panels provided with coinciding weakened hinge lines, whereby the hinged flip-top structure is formed. The tear lines of the side panels are arcuate in configuration. The glue flap is of only a narrow width as compared with the inner back panel to which it is secured. The upper portions of the front panel of the inner box structure are provided with protruding locking tabs which frictionally interlock with Deboss scores formed on the inner surfaces of the sidewalls of the flip-top structure. The surface of the inner front panel is provided with a series of transverse Deboss scorings for structural reinforcement. The fold lines between the panels of the inner box structure are slit-perforated while the fold lines of the outer box structure are merely creased or scored.

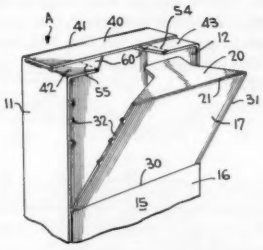


3,708,109

EASY OPEN CARTON WITH RECLOSURE FEATURE

Charles W. Rosenburgh, Jr., North Tonawanda, N.Y., assignor to F. N. Burt Company, Inc., Buffalo, N.Y.

Filed Oct. 6, 1971, Ser. No. 187,097
Int. Cl. B65d *5/72*
U.S. Cl. 229—51 TC **6 Claims**



The upper closure and reclosure structure of the carton comprises a closure panel comprising the upper portion of the back panel of the carton hinged to the remaining fixed portion of that panel and secured along its side edges to the side panels of the carton by means of a break-away tear line. Hinged to the upper edge of the closure panel is a closure flap in the form of a truncated tongue. The opposite or front panel has a hinged top flap and the side panels have hinged dust flaps. Upon initial closure of the carton, the tongue is at the bottom, then the side flaps, and then the outer or top flap. The side flaps are glued to the underside of the top flap along a portion nearer the hinge of the top flap, and the portions of the side flaps nearer the closure panel are partially slit in a direction parallel to the hinge of the closure panel and creased in the direction at right angles to the slits to provide bendable ears or tabs between which the tongue of the closure panel may be frictionally held upon reclosure of the carton. The front panel flap extends only part way toward the rear, and the sidewall flaps are bevelled off adjacent the rear center of the top of the carton to expose the closure panel flap for finger pressure to open it.

3,708,110

CONTAINER FOR BLOOD

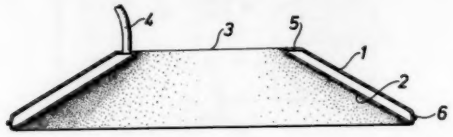
Hans Peter Olaf Unger, Stockholm; Johan Eric Hayden Westberg, Lidingo; Gunnar Ingemar Berndtsson, Stockholm, and Stephan Lars Schwartz, Lidingo, all of Sweden, assignors to AGA Aktiebolag, Lidingo, Sweden

Filed Aug. 6, 1970, Ser. No. 61,574

Claims priority, application Sweden, Aug. 11, 1969, 11122/69

Int. Cl. B04b *09/12*

U.S. Cl. 233—26 **4 Claims**



A container for blood is provided in which blood received from a patient can be stored and processed without the necessity of being transferred to another container. For example, the blood can be centrifuged, frozen or transfused without the necessity of being transferred to another container. The container comprises a closed annular flexible container of a flexible material which is inert to blood and which is provided with at least one opening for the passage of blood into and out of the annular container. The flexible material may be enclosed in an inflexible material.

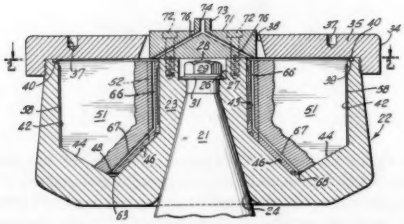
3,708,111

APPARATUS AND METHOD FOR GRADIENT ZONAL CENTRIFUGATION

Phillip Sheeler, 19034 Killock Way, Northridge, Calif., and John R. Wells, 12035 Herbert Street, Los Angeles, Calif.

Continuation-in-part of Ser. No. 886,720, Dec. 19, 1969, abandoned. This application Sept. 14, 1970, Ser. No. 71,882

U.S. Cl. 233—32 **28 Claims**



A reorienting gradient zonal rotor for separation of cell components and the like, said rotor comprising a cylindrical chamber divided into a plurality of sector-shaped compartments by vertical septa radiating from a central core. Either the annular floor or ceiling of said chamber is formed with sloping converging walls intermediate the spaced outer and inner walls of said chamber to converge either to an annular V-shaped groove or to a plurality of funnel-shaped recesses terminating, respectively, in an annular apex or a plurality of apices at which a plurality of spaced apart gradient removal ports are located, and toward each of which said converging sloping walls cause the gradient zones to be constricted and concentrated for improved definition and separation for subsequent fraction collection and analysis.

3,708,112

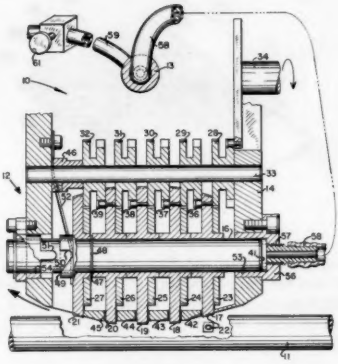
COUNTING RESET APPARATUS FOR USE IN MEASURING METHOD

Charles H. Davis, Shrewsbury, N.J., assignor to Anaconda Wire and Cable Company

Filed March 22, 1971, Ser. No. 126,812

Int. Cl. G06c *11/04, 15/42*

U.S. Cl. 235—58 P **4 Claims**



In measuring the magnitude of runs taken from a continuous production process where the size of the run is determined by the difference between two numbers, the present measuring method does not reset the count to zero at the beginning of each run, or permit the counting machine to recycle through zero during a run. Only the highest placed digit is reset. Apparatus wherein only the end wheel of a counting or number printing machine can be reset, is described.

3,708,113

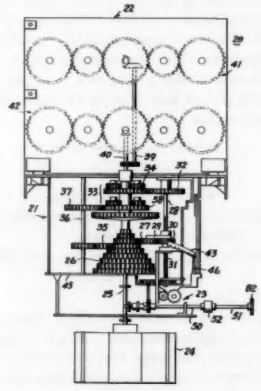
PRICE INDICATION APPARATUS IN WHICH UNIT PRICE SETTING IS CHANGEABLE FROM OUTSIDE

Shiro Katakura, and Yutaka Nishida, both of Yokohama, Japan, assignors to Tokico Ltd., Kawasaki, Kanagawaken, Japan

Filed Aug. 18, 1971, Ser. No. 172,831

Int. Cl. B67d *5/08*; **G06c** *29/00*

U.S. Cl. 235—61 M **8 Claims**



A price indication apparatus comprises a computer part for making computation with respect to a measured flow quantity of fluid and a unit price per unit flow quantity, a price indication part for indicating the result of the operation in the computer part and a unit price setting changing operation part for

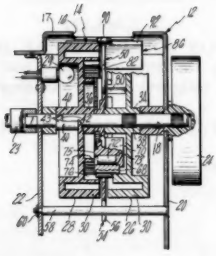
changing a unit price set in the computer part from outside of the apparatus. The operation part for changing the unit price setting is capable of changing the unit price setting by operating a single operating rod for a horizontal sliding movement and a rotational movement about its axis by means of a single knob.

3,708,114

TV CHANNEL INDICATOR COUNTER

Arnold C. Johnson, West Hartford, Conn., assignor to Veeder Industries Inc., Hartford, Conn.

Filed March 17, 1972, Ser. No. 235,681
Int. Cl. G06m *1/14*; **G06c** *27/00*; **G06m** *1/22*
U.S. Cl. 235—103 **7 Claims**



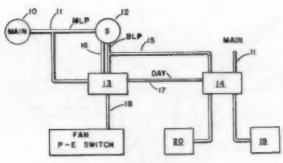
A TV channel indicator counter comprising a pair of coaxial molded plastic counter wheels mounted on a counter wheel shaft and a multi-purpose molded plastic part mounted on the shaft intermediate the counter wheels having an H-shaped partially cylindrical mask overlying the numeral bearing rims of the counter wheels and defining a pair of axially spaced windows for reading the counter wheels and for masking the adjacent surfaces of the wheel rims and the space between the wheels.

3,708,115

DIAPHRAGM LOGIC DAY SIGNAL CIRCUIT

Louis J. Bentsen, Arlington Heights, Ill., assignor to Honeywell, Inc., Minneapolis, Minn.

Filed July 26, 1971, Ser. No. 166,140
Int. Cl. G05d *23/185*
U.S. Cl. 236—47 **10 Claims**



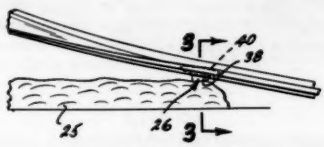
A diaphragm logic circuit for use in a day-night, pneumatic, temperature control system, the circuit providing a pressure output signal corresponding to day operation and a pressure output signal for controlling a fan P-E switch or the like, and having means for temporarily establishing day cycle operation when the system is normally in night operation.

3,708,116

CURVE ACCESSORY USABLE WITH TRACK SYSTEM FOR TOY WHEELED VEHICLES

Arthur S. Woodward, Sylmar, Calif., assignor to Mattel, Inc., Hawthorne, Calif.

Filed July 23, 1970, Ser. No. 57,597
Int. Cl. A63h *18/02*, *19/30*
U.S. Cl. 238—10 E **9 Claims**



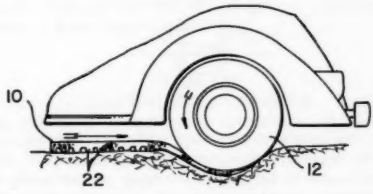
This is a curve accessory for a track system usable with toy wheeled vehicles which serves to produce a curve in the track system and thereby change the direction of travel of vehicles traversing the track. According to one embodiment, the curve accessory utilizes a length of flexible track and includes a track retaining fixture defining a banked curve and having track supports which serve to secure the flexible length of track to the track retaining fixture.

3,708,117

VEHICLE TRACTION TRACK

Sidney C. Coale, 3144 Middlebelt Road, Orchard Lake, Mich.

Filed July 27, 1970, Ser. No. 58,542
Int. Cl. B62d *55/08*; **E01b** *23/00*
U.S. Cl. 238—14 **1 Claim**



A portable vehicle traction track for freeing vehicles from ice and/or snow without having to raise the vehicle wheel. An extending smooth-bottom tongue contiguous to one end of the track permits easy insertion at the juncture of the tire and the snow. Rotating action of the tire against the upper abrasive surface of the tongue then pulls it completely under the tire. Further movement of the track is prevented by a plurality of grippers on the bottom surface of the track coming to the point where the vehicle weight is pressing them into the snow. The tire then moves along the surface of the track, out of the depression in which it previously rested.

3,708,118

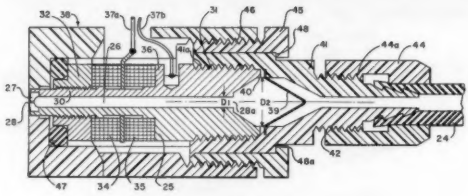
FILTERING APPARATUS FOR A DROP WRITING SYSTEM

Robert I. Keur, Niles, Ill., assignor to A. B. Dick Company, Chicago, Ill.

Filed April 19, 1971, Ser. No. 135,312
Int. Cl. A26c *1/06*; **B05b** *17/00*; **B44d** *1/08*
U.S. Cl. 239—1 **4 Claims**

A filter for a drop writing apparatus positioned adjacent to an entrance end of a nozzle fluid resonant cavity which has at its opposite end a fluid ejection orifice of the order of 0.001 inch to 0.0025 inches in diameter. The filter has a microscopic porosity capable of preventing passage through of particles of

the order of one-half the diameter of the ejection orifice, yet is mounted in an entrance chamber having a predetermined



diameter relationship to the cavity diameter so as to have substantially no effect on the fluid resonance of the cavity.

3,708,119

SPRAYING NOZZLES

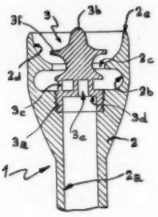
Pierre Georges Vicard, 15 Cours Eugenie, Lyon, France

Filed July 26, 1971, Ser. No. 165,890

Claims priority, application France, Sept. 16, 1970, 7034531; May 17, 1971, 7118730

Int. Cl. B05b *17/04*

U.S. Cl. 239—11 **9 Claims**



A spraying nozzle comprises a body formed with an inlet conduit to receive a fluid under pressure, a first circular chamber co-axial to the axis of the body, an outwardly opening cup-shaped second chamber also co-axial to the body and separated from the first chamber by a transverse wall having a central or first orifice, the open outer end of the second chamber forming the second orifice of the nozzle. The connection between the inlet conduit and the first chamber is so arranged that the fluid whirls within the latter and overflows through the first orifice into the second chamber wherein its angular velocity component decreases progressively while its axial velocity component increases. The frustro-conical spray issuing from the second orifice is thus of reduced conicity. The connecting means between the inlet conduit and the first chamber may be formed of a spiral helicoidal or tangential passage. The nozzle may comprise an inner member extending through both chambers and having a peripheral shoulder situated within the second chamber to form a screen above the first orifice. This inner member may terminate in a tip projecting from the nozzle, or it may be provided hollow so as to receive the body of another nozzle.

3,708,120

FLUIDIC DISHWASHER SPRAY SYSTEM

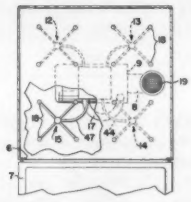
Bartholomew Camprubi, Ickenham, and Grahame Gerald Capron-Tee, Marlow, both of England, assignors to The Hoover Company, North Canton, Ohio

Filed April 6, 1971, Ser. No. 131,723

Int. Cl. B05b *13/02*

U.S. Cl. 239—66 **4 Claims**

In the preferred form this invention teaches a dishwasher including a cavity in which dishes are washed, a plurality of stationary spray nozzle groupings arranged in the washing cavity, and a washing fluid supply system to the nozzle groupings, including at least one fluid logic element arranged to sequentially supply washing fluid to the different nozzle groupings.



3,708,121

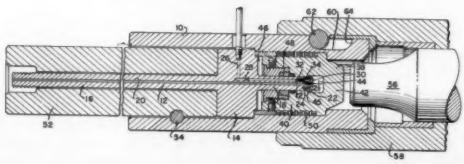
APPARATUS FOR FORMING PULSE JETS OF LIQUID

James M. Hall, Gaithersburg, Md., and Louis L. Clipp, McLean, Va., assignors to Exotech Incorporated, Gaithersburg, Md.

Filed April 19, 1971, Ser. No. 135,120

Int. Cl. B05b *3/14*

U.S. Cl. 239—102 **7 Claims**



Apparatus for forming pulsed jets of liquid. A pressure cylinder cooperates with a barrel inlet end to define a charge chamber. With the pressure cylinder in its normal position, the barrel inlet opening is blocked. Upon actuation of the device, the pressure cylinder is forced toward the barrel inlet end, applying pressure to charge material within the charge chamber, until the barrel outlet opening is unblocked and the pressurized charge material is expelled through the barrel as a pulsed jet.

3,708,122

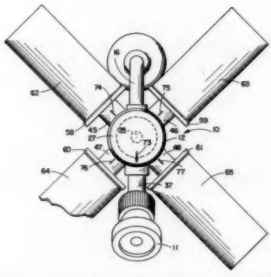
FLUID-DISTRIBUTION DEVICE

Harry Stuy, 3377 Landen Street, Camarillo, Calif.

Filed Feb. 22, 1971, Ser. No. 117,653

Int. Cl. B05b *7/26*

U.S. Cl. 239—317 **13 Claims**



A fluid-distribution device that includes a body defining a cylindrical chamber complementarily receiving a rotatable spool, the interior of which is divided into two passageways, the first having an inlet adapted to receive fluid and a

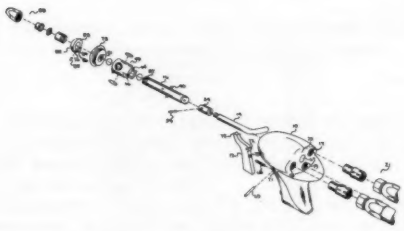
restricted outlet, the second having an outlet which along with the outlet of the first passageway is directed to the discharge opening for the body. The body also is provided with sets of pairs of openings leading to containers adapted to receive material to be introduced into the fluid. An opening in the spool for each of the passageways provides a set of openings selectively alignable with the pairs of openings leading to the containers for thereby diverting water from the first passageway through the selected container and back into the second passageway for discharge.

3,708,123

PLURAL FLUID MIXING AND SPRAY APPARATUS

Wallace F. Krueger, 4401 Merriweather Avenue, Toledo, Ohio

Filed June 19, 1970, Ser. No. 47,814
Int. Cl. F23d *13/38*
U.S. Cl. 239—415 **4 Claims**



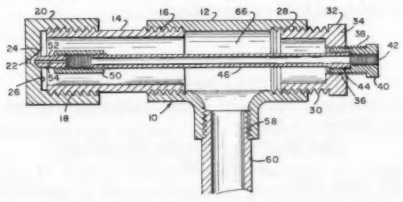
An improved airless spray apparatus incorporating and improving on the mixing valve of U.S. Pat. No. 3,490,493 (C. A. Eversman, Volume and Mixture Controllable Valve Assembly, Filed Nov. 30, 1966) Resulting in a light weight versatile spray gun for mixing and spraying plural fluid components such as polyesters, foam or the like, which has as the mixing valve ensemble, a valve cylinder having one pair of circumferentially spaced inlet ports communicating with a first and second source of fluid and a second pair of circumferentially spaced inlet ports communicating with a third source fluid, and a cylindrical valve piston disposed within the valve cylinder for rotational movement therein. The peripheral inner wall of the valve cylinder and the peripheral wall of the outer wall of the valve piston being in fluid tight relation and the valve piston having a control handle for controlled limited rotation to selectively permit and direct the flow, mixing and dispensing of the first and second, or third, fluid through the valve piston.

3,708,124

CEMENT SPRAY GUN

Paul H. Kellert, Rural Route No. 1, Mannford, Okla.

Filed June 7, 1968, Ser. No. 735,455
Int. Cl. B05b *7/08*
U.S. Cl. 239—426 **1 Claim**



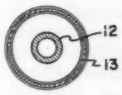
A spray gun for cement or the like material which has counternal moving parts, which is composed essentially of elements which are threadedly connected together and which may be readily threadedly disassembled for cleaning purposes. The gun comprises a Tee section with a plug and a pipe section connected with the aligned holes, respectively, of the Tee section, a plug of smaller diameter threadedly received in a central bore in the larger plug, an elongated tube threadedly connected to the interior of the smaller plug and extending axially through the Tee and through the larger pipe section, a nozzle connecting to the end of the tube by means of a female adapter, a threaded cap connected on the outer end of the pipe section adjacent the nozzle, aligned holes in the nozzle and the cap, a tapered recess on the inside of the threaded cap and a complementary tapered tip on the nozzle, a cement supply pipe connected to the third opening in the Tee section, means supplying cement under pressure to the cement supply pipe and a conduit with associated control valve supplying air under controllable pressure to the small plug.

3,708,125

FLUID AGITATOR

James T. Patterson, 54 South Main, Farmington, Utah

Filed Aug. 20, 1970, Ser. No. 65,629
Int. Cl. E03c *1/08*
U.S. Cl. 239—428.5 **11 Claims**



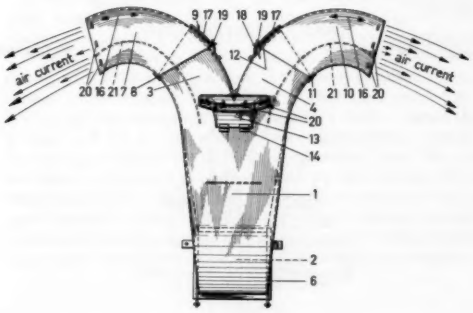
A fluid agitator that utilizes a small liquid flow to develop a large volume of air entrained liquid flow at an easily directed and adjustable flow controlling nozzle. The agitator is radially used with conventional home bath arrangements or with special pump systems for use in therapeutic treatment of individuals or in the cleansing of objects.

3,708,126

FLARING SPRAY NOZZLE

Petrus Johannes Alloysius De Kinkelder, 42 Zuiderlaan, Zevenaar, Netherlands

Filed Feb. 12, 1971, Ser. No. 114,851
Int. Cl. A01b *17/08*
U.S. Cl. 239—590.5 **8 Claims**



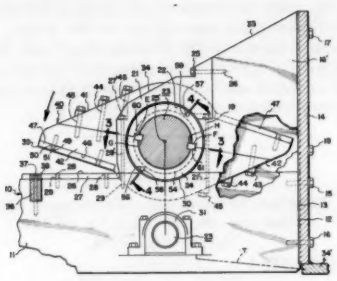
A spray head having three flaring discharging nozzles is provided to ensure total spray coverage on the front and sides of a spray apparatus. The nozzles are adjustable to alter the spray pattern and can be maintained by fasteners at any position desirable. Gas baffle guides are attached to the nozzles and extend into discharge stubs to assist the flow pattern.

3,708,127

CUTTER AND SHEARING MECHANISM

John C. Brewer, Salt Lake City, Utah, assignor to Garbalizer Corporation of America, Salt Lake City, Utah

Filed April 1, 1971, Ser. No. 130,338
Int. Cl. B02c *23/04*
U.S. Cl. 241—32 **6 Claims**



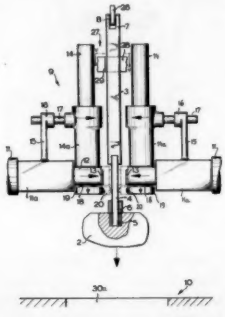
Cutting and shearing structure incorporating cutter blade structure which, upon pin release or failure, can be freed from shaft revolvement even though the shaft upon which it is mounted is still turning. This is preferably accomplished through a split blade construction mounted upon a hub which is keyed to a revolving shaft. The blade construction itself is connected by pin means, such as shear pins, to the hub. These shear pins are designed to break along their respective shear planes upon overloading the blade structure. Both cutter blade and cutter-bar structure includes replaceable and reversable, inter-cooperating cutting means. A multiple member, cutter bar — or stationary support structure — affords necessary rigidity as well as supplying direction of incoming materials to appropriate operative areas of the structure.

3,708,128

APPARATUS FOR SALVAGING CARBON FROM ANODES

Gunter Limpinsel, Forsbach, Germany, and Karl Fricker, Mellen, Switzerland, assignors to Lindemann Maschinenfabrik Gesellschaft mit beschrankter Haftung, Dusseldorf, Germany and Schweizerische Aluminium AG, Zurich, Switzerland

Division of Ser. No. 826,476, May 21, 1969, Pat. No. 3,658,261. This application April 14, 1971, Ser. No. 133,975
Claims priority, application Germany, Sept. 19, 1968, P 17 83 018.1
Int. Cl. B02c *1/06, 23/00*
U.S. Cl. 241—101 R **36 Claims**



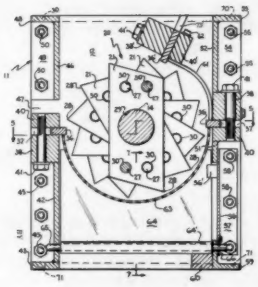
Carbon anode blocks are separated from metallic suspending devices of used or defective anode units for the production of aluminum by clamping the suspending device between one or more pairs of piston rods, by stripping the anode block off the thus clamped suspending device, and by thereupon comminuting the separated anode block in a crushing chamber which is surrounded by toothed walls at least one of which is movable into the chamber to thus comminute the anode block. An overhead conveyor is employed to transport used or defective anode units into the range of the clamping faces on the piston rods. The crushing chamber is located below the separating station so that a separated anode block can enter the crushing chamber by gravity.

3,708,129

CUTTER MACHINE

Leon J. Nowak, Clinton, N.Y., assignor to Munson Mill Machinery Co., Utica, N.Y.

Filed Jan. 7, 1971, Ser. No. 104,557
Int. Cl. B02c *13/00*
U.S. Cl. 241—189 **4 Claims**



A machine for cutting and crushing wood, nylon and other plastics and glass fibers, etc. has a rotor shaft carrying a plurality of non-rectangular parallelogram shaped plates centrally apertured for the shaft and each having two pairs of diametrically opposite keying holes equally radially spaced from the shaft, the pairs being angularly spaced. Pins through one pair of holes in each plate and a pair of holes in the contiguous plate key the plates together, the second plate being keyed to the next plate by pins through the other pair of holes, the first plate being similarly keyed to an annular flange integral with the shaft near its driven end. A spacer tube secured to the other end of the shaft clamps all the plates against the flange. A housing is closed at two ends and two sides, the shaft being journalled in the end plates. Fixed blades are adjustably secured in the housing sidewalls, the plates being fixed on the shaft so their acute angle corner edges form teeth presented to the fixed blade edges. A trough-shaped screen is secured in the housing below the rotor and a third fixed blade may be secured above the rotor. One end plate is arranged so the rotor may be withdrawn therethrough and the fixed blades are adjustable from outside the housing and means for readily adjusting the fixed blade are provided.

3,708,130

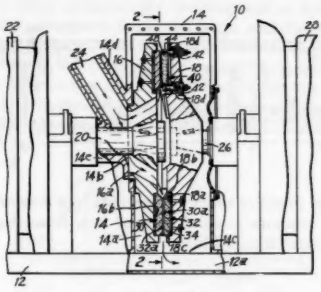
PULP REFINERS

James H. Perry, Worcester, Mass., assignor to Norton Company, Worcester, Mass.

Filed March 9, 1971, Ser. No. 122,331
Int. Cl. B02c *7/12*
U.S. Cl. 241—260 **16 Claims**

Disc and Conical or Jordan type refiners having a counter rotating or a stationary opposed refining member, of either disc or hollow frustoconical shape, on which are mounted a plurality of spaced freely rotatable pressure rollers. The rollers are preloaded and forced under pressure toward an opposing refining element, so they beat against, compress, and force the raw material against the opposing refining element. There are

differential surface speeds between the rollers and the opposing refining element and the raw material. Hence wood chips,



saw mill residues, screen rejects, and/or coarse fibers are quickly reduced to acceptable pulp for making paper.

3,708,131

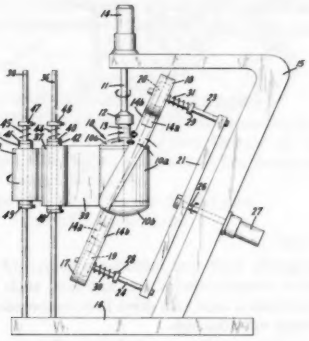
METHOD OF AND APPARATUS FOR WRAPPING LAYERED COMPOSITE THERMAL INSULATION

Alfred Barthel, Indianapolis, Ind., assignor to Union Carbide Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 338,526, Jan. 4, 1964, abandoned. This application April 1, 1966, Ser. No. 545,517

Int. Cl. B65h *81/00*

U.S. Cl. 242—3 **6 Claims**



Method and apparatus for applying thermal insulation to a vessel having a cylindrical side wall and rounded end walls by rotating the vessel about its end-to-end axis and orbiting a shuttle to apply strips of composite material, formed of a layer of thermally conductive material and a layer of radiation-reflective material, to the vessel to cover the rounded end walls, while the rotation of the vessel applies a wide second bond of similar composite material to the cylindrical wall of the vessel.

3,708,132

METHOD AND DEVICE FOR WINDING REINFORCING THREADS FOR PRODUCING TUBULAR BODIES OF REINFORCED SYNTHETIC RESIN

Georges F. Lang, Nancy, France, assignor to Centre de Recherches de Pont-A-Mousson, Maidieres, Pont-A-Mousson, France

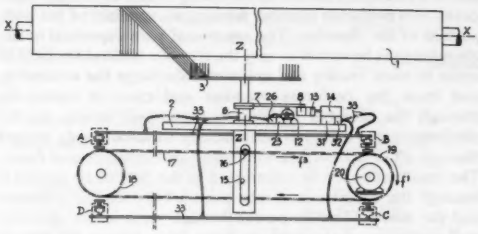
Filed July 28, 1969, Ser. No. 845,282

Claims priority, application France, July 29, 1968, 160934

Int. Cl. B65h *81/06*

U.S. Cl. 242—7.23 **5 Claims**

Method and device for winding parallel layers of threads or filaments on a mandrel driven in rotation for producing a tubular body of reinforced synthetic resin. The method employs a thread guide comb. The width of the layer of threads is



varied by modifying the angle of orientation of the comb relative to the axis of the mandrel.

3,708,133

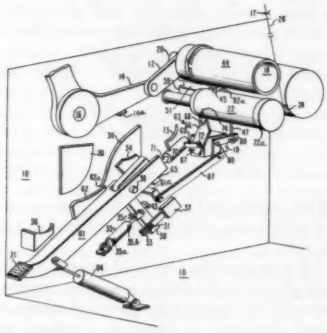
APPARATUS FOR WINDING YARN

James Edward McErlane, Wilmington, Del., and Russell Neal Palmer, Kinston, N.C., assignors to E. I. du Pont de Nemours and Co., Wilmington, Del.

Filed July 16, 1971, Ser. No. 163,348

Int. Cl. B65h *54/02*

U.S. Cl. 242—18 A **6 Claims**



A winding apparatus of the type that includes a plurality of arms rotatably mounted in a frame for moving rotatable chucks mounted to the arms successively through winding and doffing positions includes a yarn transfer mechanism for transferring yarn from a full package to an empty package support carried by the chucks. The transfer mechanism is carried by a linkage mechanism which is actuated by a motive means that is operated by a cam and follower arrangement coupled between the windup frame and the rotatable arms. The cam includes a separable portion carried by the linkage which when engaged by a follower carried by the rotatable arms triggers operation of the linkage. The cam and follower arrangement serves both as a guide for the movement of the arms and as a means for initiating operation of the transfer mechanism.

3,708,134

STRAND HANDLING APPARATUS AND METHOD

William E. Stoppard, Warwick, R.I., assignor to Leesona Corporation, Warwick, R.I.

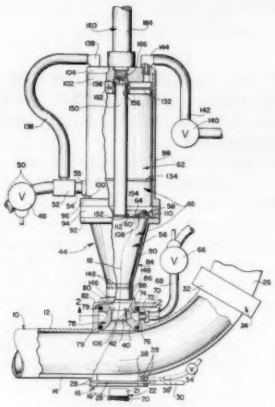
Filed May 25, 1970, Ser. No. 40,113

Int. Cl. B65h *54/02*

U.S. Cl. 242—18 R **23 Claims**

A method and apparatus for readying filled supply bobbins for receipt by a winding machine. As each bobbin is processed its unwinding end is trimmed and a jet delivers the end

through a mouth of a bunch maker and into a chamber which diverges from proximate the mouth. A vortex then carries the unwinding end into the chamber and deposits the unwinding end in a circuitous pattern substantially within an annular concavity in a perforate member forming an end face of the wide portion of the chamber. The amount of yarn deposited in the chamber may be varied to vary the size of a resultant bunch. In order to more readily and uniformly discharge the unwinding end from the perforate member and carry it outwardly through the chamber to provide a compact bunch, air for discharging the bunch is substantially simultaneously passed through all of the perforations with substantially equal force. The resultant bunch is compressed as the flow of air carries it through the chamber and into a neck between the chamber and the mouth. This air passes through vents in the chamber wall upstream of the neck to keep from driving the bunch through the mouth. A ram then moves the compressed bunch



through the mouth and deposits the bunch at a desired location in a hollow core of the bobbin which has been positioned at the mouth.

In order to provide the previously mentioned discharging air flow through the perforations, a second chamber is provided in communication through the perforate member with the first mentioned chamber. A piston is received in the second chamber. The vortex air stream which deposits the unwinding end on the perforate member passes through the perforations and in conjunction with vacuum applied to both ends of the second chamber, the piston is positioned at the end of the second chamber opposite the perforate member. The vortex air and the vacuum is then stopped and air pressure is introduced into the second cylinder to drive the piston toward the perforate member, whereupon the piston compresses the discharging air which passes with substantially equal force through the perforations of the perforate member.

3,708,135

POWER DRIVEN PLATEN FOR TAPE CARTRIDGES

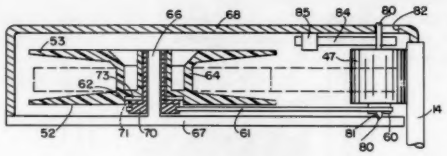
Melvin A. Lace, Prospect Heights, Ill., assignor to Motorola, Inc., Franklin Park, Ill.

Continuation-in-part of Ser. No. 881,690, Dec. 3, 1969, abandoned. This application Feb. 4, 1971, Ser. No. 112,718

Int. Cl. B65h *17/48*

U.S. Cl. 242—55.19 A **12 Claims**

The platen of a continuous loop tape cartridge is driven by means of a drive belt from the pressure roller of the tape cartridge and is caused to rotate at a hub speed which is approximately 0.9 to 0.98 times the speed of the tape being pulled from the inner loop of the continuous tape loop. The pressure roller is pivotally mounted in a slat and spring-biased to engage an edge of the capstan receiving opening in the cartridge when the cartridge is removed from the tape recorder/reproducer to lock the tape and pressure roller against movement. A one-way clutch clutches the platen for



drive by the pressure roller and permits free movement of the platen for temporary withdrawal of tape from the cartridge when the platen is overdriven.

3,708,136

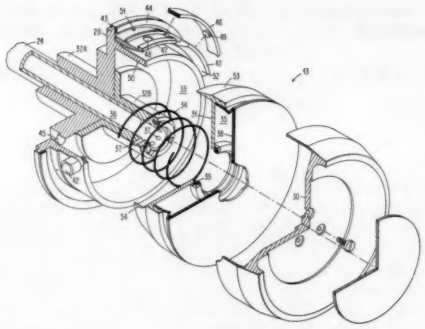
MAGNETIC TAPE UNIT HAVING A PNEUMATIC REEL HUB

James R. Cope, and Paul F. Smith, both of Boulder, Colo., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 21, 1971, Ser. No. 108,486

Int. Cl. B65h *19/02*

U.S. Cl. 242—68.3 **15 Claims**



A magnetic tape unit includes a source of air pressure to pressurize components of the tape unit, such as air bearings, and to actuate a tape reel drive hub, automatically coupling a reel of tape onto the hub.

The pneumatically actuated drive hub includes first and second disk-shaped walls which are axially fixed at spaced positions along a motor drive shaft. One of these walls covers the end of the shaft and is of a small diameter, to allow a reel to be placed on the drive hub. The other wall encircles the shaft, is of a large diameter, and includes an annular positioning shoulder against which the reel is axially seated. A third axially movable wall is positioned intermediate the two fixed walls. This wall is spring biased toward the first wall. A closed chamber between the movable wall and the first wall is connected to the source of air pressure, so that when the chamber is pressurized, the movable wall moves toward the second wall. This movement expands a resilient ring which engages the mounting opening in the reel, to thereby couple the reel to the drive hub.

3,708,137

CHANGING HAND FISHING REEL

Cyril W. Jones, 3100 Warm Springs Ave., Boise, Idaho

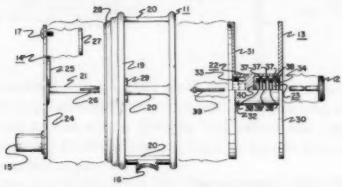
Filed May 13, 1971, Ser. No. 142,988

Int. Cl. A01k *89/00*

U.S. Cl. 242—219 **3 Claims**

The fishing reel of the invention includes a line crank winding assembly having an axle in operative communication with the spool of the reel. The spool and the axle are provided with

a disc-type, slip clutch having manual adjustment means to limit the tension placed on the line. A housing is disposed between the crank winding assembly and the reel. The wall of the crank winding assembly is provided with an eliptical arcuate-shaped ledge adjacent the housing and a hand control means distally disposed above the ledge and threadably carried in the wall of the crank winding assembly. The wall of the housing adjacent the crank winding assembly is provided with an annular ring so that the wall of the housing is recessed. A disc is carried on the ledge between the walls of the crank assembly and the housing. The control means threadably carried



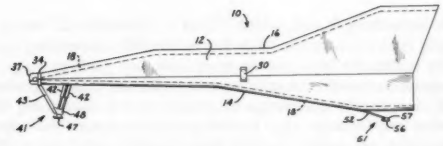
by the wall of the crank assembly is normally in the path of the disc. When the disc is adjacent the control means the disc may rotate between the ledge and the annular ring of the housing in response to rotation of the crank winding assembly in one direction. When the crank winding assembly is rotated in a direction opposite, the disc tends to wedge between the ledge and the annular ring thus being operable as a brake. By removing the control means from the path of the disc, the disc may be moved to the side opposite with respect to the control means, thus providing means by which the reel may be selectively operated by persons having right and left hand dominant dexterity without disassembly of the reel of this invention.

3,708,138

AIRCRAFT SHAPED TOW TARGET

William R. Griffiths, Costa Mesa; Donald E. Johnston, Garden Grove; John S. Yates, Placentia, and Gerard E. Layer, Corona Del Mar, all of Calif., assignors to The Susquehanna Corporation, Fairfax County, Va.

Filed Dec. 14, 1970, Ser. No. 97,684
Int. Cl. B64c *31/00*
U.S. Cl. 244—16 **10 Claims**



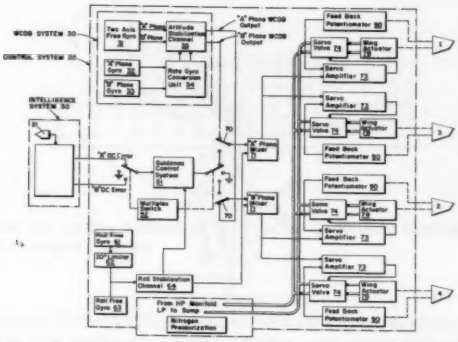
An aircraft shaped tow target capable of being towed by jet aircraft at high speeds is disclosed. The airframe of the target includes two wings and a vertical fin and is fabricated from a lightweight structural material such as foamed plastic. A support tube is installed at the leading edge of each wing and the vertical fin. The wing structure includes a wing channel which extends the length of the wing and which is foamed into the wing panel during fabrication. A hinged member allows the two wing channels to be joined to form a third channel into which the vertical fin is installed. Towing and control of the target is effected by a lightweight tow bridle connecting the target and tow aircraft. The landing assembly includes a skid configuration which allows target takeoff and landing to be accomplished on a normal paved runway.

3,708,139

MISSILE CONTROL SYSTEM

Phillip R. Wheeler, Alexandria, Va., assignor to The United States of America as represented by the Secretary of the Navy

Filed Jan. 19, 1959, Ser. No. 787,782
Int. Cl. B64g *1/20*
U.S. Cl. 244—3.13 **13 Claims**



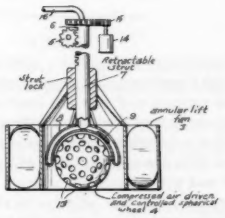
1. A control system for steering a zero velocity launched guidable tandem coupled booster missile airborne vehicle during the boost phase of flight; comprising means for sensing the deviation of the vehicle in flight to provide steering signals, means for actuating the vehicle aerodynamic surfaces, means for supplying power to said actuating means, said power supply means being precharged before launching of the vehicle whereby power is available immediately upon the launching of the vehicle to operate said actuating means during the beginning portion of the boost phase of flight, said power being coupled to said actuating means, said sensing means comprising means for measuring the magnitude and direction of vehicle roll for providing roll stabilization steering signals, means for determining the attitude of the vehicle from the launching vector during boost phase and establishing boost phase steering signals, means for mixing the roll stabilization steering signals with the boost phase steering signals, said steering signals from said mixing means being applied to said actuating means to operate the vehicle aerodynamic surfaces thereby changing the attitude of the vehicle and the direction of vehicle flight by movement of said vehicle aerodynamic surfaces, whereby vehicle roll stabilization and vehicle attitude stability is provided throughout the boost phase of flight enabling capture of the missile in a narrow radar beam at the end of boost phase of flight.

3,708,140

TRIPHIBIAN MOBILITY PROPULSION DEVICE

Bernard Rashis, Springfield, Va., assignor to The United States of America as represented by the Secretary of the Army

Filed Sept. 15, 1970, Ser. No. 72,386
Int. Cl. B64c *25/50*
U.S. Cl. 244—50 **9 Claims**



A flying platform or aircraft with power driven wheels is provided but without conventional drive shafts, gear trains and so on.

3,708,141

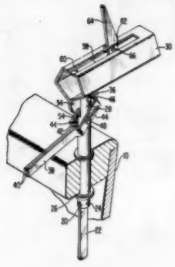
FISHING ROD HOLDER

Arthur H. Friedgen, Omaha, Nebr., and Warren R. Nohrenberg, Omaha, Nebr.

Continuation-in-part of Ser. No. 851,793, Aug. 21, 1969. This application May 3, 1971, Ser. No. 139,653

Int. Cl. A01k *97/10*

U.S. Cl. 248—42 **8 Claims**



A fishing pole or rod holder with an elongated body defining a receptacle or housing that is pivotally mounted at one end upon a vertical support. A lever pivotally mounted on the vertical support is designed to engage a projection on the body for adjustably positioning the body with respect to said support. The receptacle or housing is provided with a clamp for securing the fishing pole or rod therein.

3,708,142

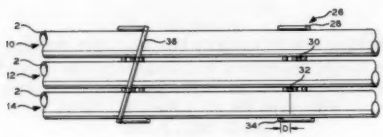
TUBE SUPPORTS

William M. Small, Bartlesville, Okla., assignor to Phillips Petroleum Co., Bartlesville, Okla.

Filed Jan. 11, 1971, Ser. No. 105,499

Int. Cl. F16l *3/00, 3/08*

U.S. Cl. 248—49 **8 Claims**



A method and apparatus for supporting tubes of a tube bundle. First and second rod sets are inserted through the tube bundles with only one rod of the first rod set positioned between each row of tubes and only one rod of the second rod set positioned between each column of tubes. Each successive rod of each rod set is laterally spaced a common distance along the length of the tube relative to the succeeding rod of that rod set with a rod of each set being positioned on opposed sides of each tube of the bundle. A securing means is attached to the ends of each rod for urging each set of rods and the tubes together to form a unitary bundle.

3,708,143

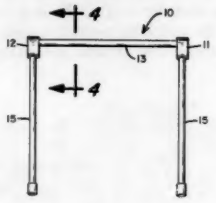
COLLAPSIBLE SELF-STORING STAND

Howard D. Schletz, 165 W. Logan, West St. Paul, Minn.

Filed Dec. 24, 1970, Ser. No. 101,256

Int. Cl. F16m *11/32*

U.S. Cl. 248—165 **8 Claims**



A stand or rack constructed with supporting legs which are removably attached to the sides of the stand and, when detached, are conveniently and compactly stored between the two side members.

3,708,144

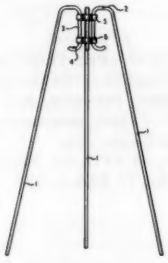
SUPPORTING DEVICE

Donald C. Nasmith, 20 Marchwood Drive, Downsview 473, Ontario, Canada

Filed Oct. 26, 1971, Ser. No. 192,393

Int. Cl. F16m *11/22*

U.S. Cl. 248—167 **5 Claims**



A supporting device, which I term a "Litter-Gard," being a tripod type structure suitable for removably suspending centrally within the legs, one or more polyvinyl garbage bags or comparable articles, that will prove stable on uneven ground and capable of supporting a maximum load by equalizing the burden on the three legs. Each leg is formed with the upper end bent inwardly, turned downwardly and terminally rounded up outwardly in a holding hook. The downward reaches of the legs, between the top inward extension and the hook, being hingedly connected by a clamping bracket to allow of the tripod being folded flat for compact and convenient storage when not in use.

3,708,145

END CONNECTOR GROMMET ASSEMBLY

John A. Pestka, Park Ridge, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.

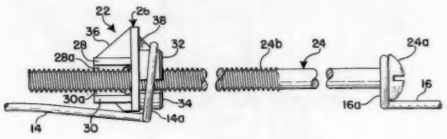
Filed Nov. 9, 1971, Ser. No. 197,021

Int. Cl. H01j *29/02*

U.S. Cl. 248—361 **10 Claims**

A mounting assembly in yoke form for securing a television picture tube to a chassis or base and which includes a pair of wires or straps anchored to the chassis and passed partially

over the tube; each wire having a substantially right angled looped end with one end engaging behind the head of an elongated screw and with the other end engaged with a ratchet type nut permitting ratcheting of the nut over the screw threads upon relative movement of the screw head and the nut

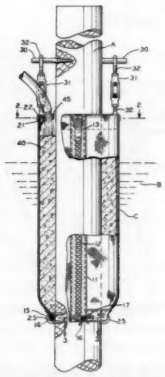


member toward one another until the wires or straps are initially tensioned at which time the nut becomes non-ratcheting and turning of the screw therein will effect the desired ultimate tensioning of the wires or straps to secure the tube to the chassis or other support member.

3,708,146
MEANS FOR ENCASING RIGID MEMBERS WITH CONCRETE

Bruce A. Lamberton, c/o Construction Techniques, Inc., 1111 Superior Building, Cleveland, Ohio

Filed Dec. 7, 1970, Ser. No. 95,761
Int. Cl. E02d *5/38;* **B22d** *19/08*
U.S. Cl. 249—1 **6 Claims**



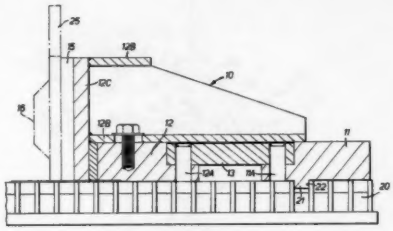
A flexible sleeve of a larger circumference than the member to be encased is fastened at its lower end tightly around the member. The upper end of the sleeve has a rigid hoop of a circumference larger than the member and means are provided for placing the sleeve under longitudinal tension. A cementitious grout of a high water cement ratio is then poured into the open upper end of the sleeve. If the sleeve is porous, the water of the grout will bleed through the pores and the water-cement ratio will be lowered. The now thickened grout is then allowed to harden. The sleeve may then be removed by opening a longitudinal extending seam which is usually a zipper and reused.

3,708,147
CASTING MOLD

Keith Ross, Sheffield, England, assignor to Davy and United Engineering Company Limited, Sheffield, England

Filed June 12, 1970, Ser. No. 45,605
Int. Cl. B28b *7/20*
U.S. Cl. 249—99 **5 Claims**

To cast an element with a cavity in its edge, the casting mould has a mould edge element which carries a cavity forming member and which is linked to a stationary member so that, after casting, the mould edge member can be swung away

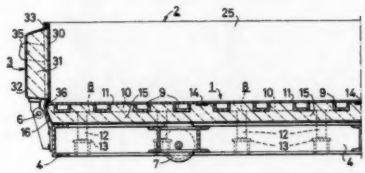


from the casting position without the cavity forming member disturbing the casting.

3,708,148
MOLD FOR CASTING CELLULAR CONCRETE BODIES

Rolf Erik Goransson, Alvsjo, Sweden, assignor to Internationella Siporex Aktiebolaget, Stockholm, Sweden

Filed July 7, 1971, Ser. No. 160,282
Claims priority, application Sweden, July 31, 1970, 10531/70
Int. Cl. B28b *7/34*
U.S. Cl. 249—111 **5 Claims**



A heat, insulated mold for casting cellular concrete bodies and having a non-warping bottom member comprising a number of table-like structures, each including a sheet metal top welded to a stiffening metal framework having a few, widely spaced legs of low heat-conductivity, a common support for said table-like structures permitting certain horizontal movements of their legs to compensate for expansive variations in the planar size of said structures and a heat-insulating covering on the lower side of all said table-like structures for maintaining their stiffening frameworks at substantially the same temperature as the concrete mass received in the mold. The legs of said table-like structures contacting the support in a manner to prevent distortion of the latter by heat transferred through said legs, and the longitudinal side wall members of the mold being also of a non-warping design.

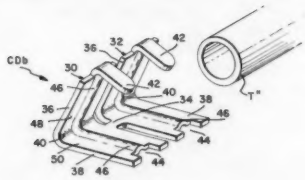
3,708,149
CLOSURE DEVICE FOR CLOSING FLEXIBLE TUBES

Leon Joel Dinger, Harrisburg, Pa., assignor to AMP Domestic Inc.

Division of Ser. No. 812,811, April 2, 1969, Pat. No. 3,612,475. This application Feb. 17, 1971, Ser. No. 116,057
Int. Cl. F16k *7/04*
U.S. Cl. 251—9 **1 Claim**

Tube closure devices comprising bendable members, each having a pair of arms connected together by integral hinges are disclosed. Coacting latch arrangements are disposed on the extending ends of the arms to latch the arms over sections of flexible tubes which are placed under compression via the closure devices. Raised floor sections on at least one of the

arms serve to compress and sealingly close the tube such that residual pressures are provided in a closure. Alternate curved



floor sections also assure a sealed closure and provide strain relief means in a closure where the flexible tubes join closure devices.

3,708,150

FAST CLOSING VALVE

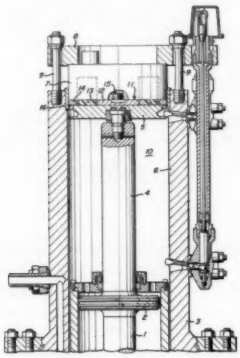
Carl Heinz Hafele, Bergstrasse 83, Moncheglabach, Germany

Filed Aug. 2, 1971, Ser. No. 167,961

Claims priority, application Germany, Aug. 6, 1970, P 20 39 086.7

Int. Cl. F16k *31/143*

U.S. Cl. 251—31 **8 Claims**



The specification discloses a valve having a valve member to which is connected a double acting piston. A magnetic armature connected to the piston is disposed close to an end wall of the cylinder in which the piston moves when the valve member is in open position and a holding magnet on the outer side of the end wall cooperates with the armature.

3,708,151

METHOD AND APPARATUS FOR CLAMPING PLANKS, BOARDS, POLES, PIPES, AND THE LIKE, TO PILE DRIVERS AND PULLING DEVICES

Gotthilf Schulin, Fellbach, Germany, assignor to Wacker Werke KG, Munich, Germany

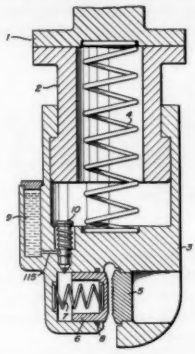
Filed Dec. 10, 1970, Ser. No. 96,867

Claims priority, application Germany, Dec. 12, 1969, P 19 62 318.8

Int. Cl. B66t *3/22*

U.S. Cl. 254—133 **19 Claims**

A clamping arrangement, and a method of operation thereof, for clamping a work member to a reciprocable driving mass. The clamp arrangement has a pair of jaws which are urged toward each other by fluid operable means which is energized by a pump which has a piston that is actuated to draw fluid from a reservoir by movement of the mass and is actuated to supply fluid to the fluid operable means by a spring.



3,708,152

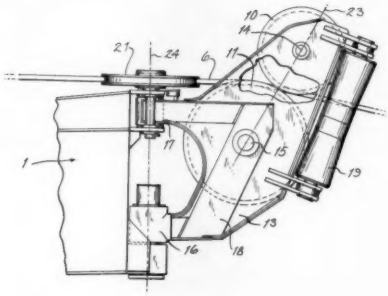
DRAGLINE FAIRLEAD

Kenneth D. Bulin, Hales Corners, Wis., assignor to Bucyrus-Erie, So. Milwaukee, Wis.

Filed Dec. 4, 1970, Ser. No. 95,226

Int. Cl. B66d *1/36*

U.S. Cl. 254—190 R **1 Claim**



The drag rope of a dragline excavator passes over a lower sheave and then under an upper sheave as it is payed out from a drum in the excavator housing. The two sheaves are oriented to deflect the drag rope downward a predetermined angle as it passes between them. This orientation insures that the rotation of both sheaves is controlled by frictional engagement with the drag rope during operation. Such continuous control of the sheaves prevents relative movement between the drag rope and sheaves that may result in increased wear and fatigue of the rope.

3,708,153

ENCLOSURE FOR LANDFILL DISPOSAL SITE

Leonard C. Triem, c/o Triem Steel and Processing, Inc., P. O. Box 215, Chicago Heights, Ill.

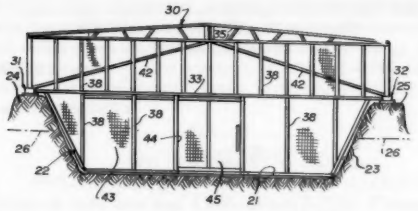
Filed Oct. 6, 1971, Ser. No. 186,955

Int. Cl. E04h *17/16*

U.S. Cl. 256—25 **13 Claims**

A mobile screen enclosure for a landfill disposal site trench, to prevent paper and other light refuse from blowing about. The trench is bounded by parallel walls or mounds of dirt. A generally rectangular framework spans the trench and is supported on wheels which move on a track extending along the mounds, for the length of the trench. A screen covers the

framework forming an enclosure of sufficient size to accommodate a truck delivering refuse and machine for compacting



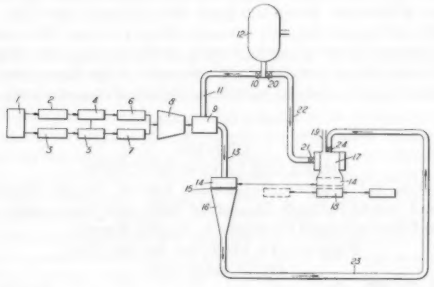
and covering the refuse. One end of the screen enclosure extends down into the trench and is provided with a door for passage of vehicles along the trench floor.

3,708,154

PRODUCTION OF FOUNDRY CORES

Terence H. Middleton, Shirley, England, assignor to British Leyland (Austin-Morris) Limited, Birmingham and The Borden Chemical Company (U.K.) Limited, Southampton, England

Filed July 8, 1970, Ser. No. 53,124
Int. Cl. B01f *7/04, 7/16*
U.S. Cl. 259—2 **4 Claims**



A machine for producing resin-bonded cold-setting foundry cores on a flow-production basis comprising means for delivering two segregated mixes, of sand and resin and of sand and hardener respectively, into a mixing device to produce a homogeneous final mix of all the materials, together with means for blowing the final mix into a delivery manifold, and for blowing inert backing material to impel the whole of the cold-setting mix from the delivery manifold into a core-box.

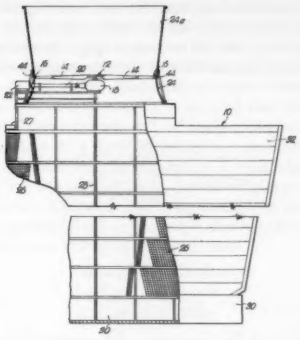
3,708,155

COOLING TOWER FAN BLADE ASSEMBLY HAVING YIELDABLE, EXPENDABLE TIP

Joyce D. Holmberg, Overland Park, Kans., and Earl R. Allgeyer, Raytown, Mo., assignors to The Marley Company, Kansas City, Mo.

Filed Nov. 9, 1970, Ser. No. 88,020
Int. Cl. F01d *5/20;* **B01f** *3/02, 3/04*
U.S. Cl. 261—24 **16 Claims**

A yieldable and expendable blade tip for use on the outer end of each of the blades of a cooling tower fan mounted within a fan cylinder. The tips each comprise a deformable body, preferably constructed of a synthetic resin material or the like, adapted to be mounted over the end of the blade, and releasably secured thereto by means of a binding strap and a series of fasteners extending into a respective blade. Fastener clearing slots are provided in the tip body to permit the latter to be shifted in or out longitudinally of the blade as required so that the tip may be positioned in close proximity to the inner surface of the fan cylinder. The blade tips prevent significant damage to the blades as well as the fan cylinder in case the latter is displaced by unexpectedly strong wind to an extent to



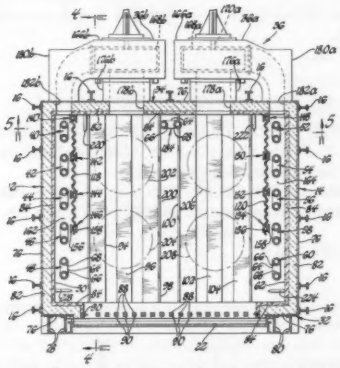
permit engagement of the inner surface of the fan cylinder with the blade tips.

3,708,156

HEAT TREAT FURNACE

Claude H. Leland, Grosse Pointe, Mich., assignor to Super Steel Treating Co., Warren, Mich.

Continuation-in-part of Ser. No. 852,393, Aug. 22, 1969, Pat. No. 3,584,852.
Filed March 31, 1971, Ser. No. 129,838
Int. Cl. F27b *11/00, 5/00*
U.S. Cl. 263—41 **15 Claims**



A heat treat furnace having at least one radiator channel along a wall having heat radiators therein with a blower exhausting air into the channel horizontally at one end of the channel and with the channel exhausting air horizontally into the furnace interior at the other end of the channel. The blower suction side draws air horizontally from the furnace interior so that heated air is recirculated in the furnace interior horizontally to effect homogeneous heating of metal items in the furnace from top to bottom, side to side and end to end by air recirculation in horizontal travel to oppose and reduce gravitational and density influences toward stratification.

3,708,157

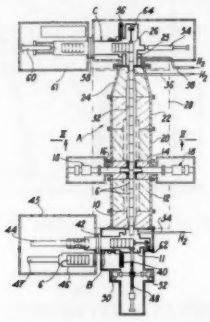
CONTINUOUS SINTERING FURNACE

Bernard Aubry, 94 L'Hay-les-Roses; Jacques Gillot, 93 Gagny; Yves Masselot, Manosque, and Albert Teboul, 84 Lapalud, all of France, assignors to Commissariat A L'Energie Atomique, Paris, France

Filed July 20, 1970, Ser. No. 56,458
Claims priority, application France, Aug. 8, 1969, 6927464
Int. Cl. F27b *9/14*
U.S. Cl. 263—6 R **7 Claims**

A furnace for continuous sintering of pellets of ceramic nuclear-fuel material containing binder in a neutral or reduc-

ing atmosphere comprises a horizontal-axis tubular enclosure having heating means distributed along said enclosure and a support plate for the longitudinal displacement of pellet containers. A circulation system for maintaining a neutral or reducing atmosphere and for extracting the binder comprises inlets for injecting neutral or reducing gas at the two ends of the furnace and an outlet for withdrawing gas in an inter-



mediate zone between the presintering and sintering zones. Means associated with a container-introduction lock-chamber placed at one end of the furnace and with an extraction lock-chamber for withdrawing containers at the other end of the furnace cause the containers to travel along the support plate from the introduction lock-chamber to the extraction lock-chamber.

3,708,158

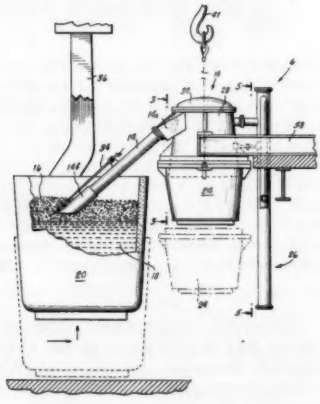
APPARATUS FOR TRANSFERRING MOLTEN METAL

Thomas E. Perry, Chagrin Falls, Ohio, assignor to Republic Steel Corporation, Cleveland, Ohio

Division of Ser. No. 841,026, July 11, 1969, Pat. No. 3,632,096. This application June 25, 1971, Ser. No. 156,959

Int. Cl. A01g *23/08*

U.S. Cl. 266—34 PT **7 Claims**



Apparatus for transferring molten metal such as steel from one location to another, including a paper tube through which the molten metal passes.

3,708,159

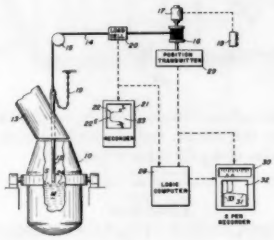
METHOD AND APPARATUS FOR LOCATING THE SURFACE OF A LIQUID METAL BATH

Harold W. De Bray, Monroeville Borough, Pa., assignor to United States Steel Corporation, Pittsburgh, Pa.

Filed Jan. 28, 1971, Ser. No. 110,496

Int. Cl. C21c *7/00*

U.S. Cl. 266—34 LM **10 Claims**



A method and apparatus for locating the surface of a liquid metal bath, particularly intended for use with a basic oxygen steelmaking furnace or an open hearth in which oxygen is used. Oxygen is introduced to such furnaces with a lance which is lowered by a cable and drum to start a blowing operation. The invention measures the apparent weight of the lance as it is lowered. When the lance first contacts the bath, the bath exerts a momentary buoyant effect thereon. The resulting change in the apparent weight of the lance is detected. A memory device remembers the position of the lance when it makes contact, and this position is displayed on a recorder.

3,708,160

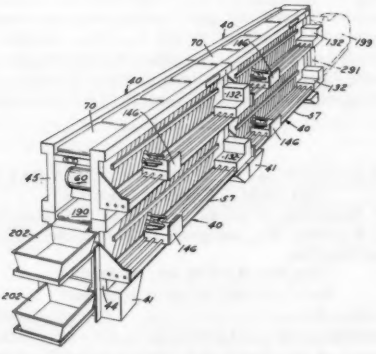
SHEET COLLATING MACHINE

Edward T. Kantarian, Royal Oak; John N. Bearde, Berkley, and Donald F. Staub, Bloomfield Hills, all of Mich., assignors to Edon Industrial Products Co., by said Bearde

Filed Dec. 19, 1969, Ser. No. 886,718

Int. Cl. B42b *1/02*

U.S. Cl. 270—53 **10 Claims**



Collating apparatus having an automatic loading cycle for placing sheets of various sets in bins to organize a group of various sheets in each bin and for jogging the sheets of the group in each bin into edge alignment during the loading cycle; the apparatus having an automatic unloading cycle for stapling the group of sheets in each bin together in a book sequentially from bin to bin, unloading the book from each bin after it is stapled to a bottom conveyor below the bins, and

conveying the books to a collection point. Each said collating apparatus constituting a basic machine unit of designed book making capacity to suit the needs of users in the minimal to average range. Each basic machine unit being integratable with like units in end-to-end and/or superposed relationship to suit user's needs above the minimal to average range to provide machines of larger capacity at near the same cost per book thereby obviating greatly increased costs for larger capacity machines.

3,708,161

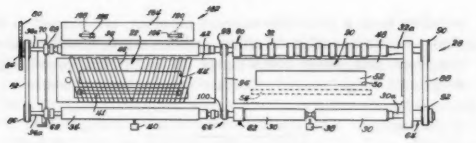
PHOTOELECTROSTATIC COPYING MACHINE

George K. Lux, San Jose, Calif.; James B. Ellis, Chicago, and John J. Schulze, Prospect Heights, both of Ill., assignors to Addressograph-Multigraph Corporation, Mount Prospect, Ill.

Division of Ser. No. 699,507, Jan. 22, 1968, Pat. No. 3,556,655. This application Feb. 10, 1970, Ser. No. 14,886

Int. Cl. B65h *5/26*

U.S. Cl. 271—9 **5 Claims**



This invention concerns an automatic copying machine operable between a reduced copying mode and a full size copying mode. It has a turret lens assembly movable between different positions for projecting a full size or a reduced size image of an original onto a copy sheet, and a drive system for moving the original and copy sheet respectively past illuminating and exposure stations at equal or unequal speeds. A resilient overtravel operating assembly moves the lens assembly between positions and firmly holds it in place. In the full size copying mode the copy sheet and original move at the same speed; in the reduced copying mode the original moves faster than the copy sheet and in proportion to the size of the reduced light image. A single switch controls the copying mode. During the reduced copying mode, it turns on edge exposure lamps which discharge unexposed marginal areas which would otherwise form dirty copy sheet edges.

3,708,162

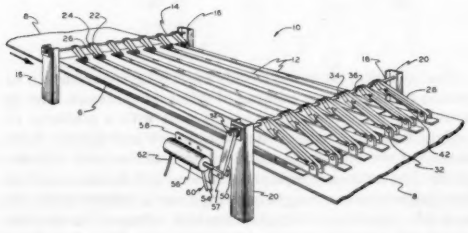
STREAM FLOW INTERRUPTER

Walter R. Skudlarek, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed March 12, 1971, Ser. No. 123,557

Int. Cl. B65h *7/02*

U.S. Cl. 271—47 **20 Claims**



A device is shown for interrupting the flow of a stream of sheets of boxboard, corrugated fiberboard, and the like, on a conveyor. A plurality of elongated structural members are each individually suspended above and along the direction of travel of a conveyor in spaced relation with respect to each other across the conveyor. First and second shafts extend across the conveyor and are spaced from each other along the direction of travel of the conveyor. A first link freely pivotally supports the upstream end of each elongated member from the first shaft a distance above the conveyor which permits the travel of sheets therebeneath. A second link freely pivotally supports the downstream end of each elongated member to enable contact with a sheet traveling on a conveyor. A pick-up arm for each link is fixedly secured on a shaft adjacent the link and has a link contacting surface extending beneath a surface of the adjacent link. A crank is connected to the shaft and is driven by a piston-cylinder assembly to rotate the crank means to raise and lower the elongated members.

ERRATUM

For Class 271—62 R see:
Patent No. 3,708,165

3,708,163

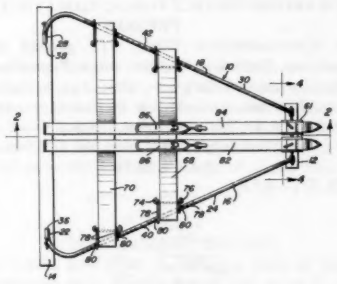
PARALLEL SKI TRAINER AND LEG CONDITIONER

Fred B. Hynes, 3045 South Holly Place, Denver, Colo.

Filed March 30, 1970, Ser. No. 23,830

Int. Cl. A63b *69/18*

U.S. Cl. 272—57 B **12 Claims**



A ski trainer for teaching parallel skiing including a pair of horizontally spaced apart supports including first support structure for releasably clampingly engaging and supporting the front ends of a pair of snow skis for guided limited oscillation about upstanding axes extending therethrough and also oscillation about axes extending longitudinally of the supported skis and second support structure in the form of a horizontal transverse elastic strap for supporting the rear ends of the same skis for generally horizontal swinging about the aforementioned upstanding axes, limited vertical oscillation and oscillation of the rear ends of the supported skis about their longitudinal axes.

3,708,164

MANUAL TORSIONAL EXERCISER

Benjamin John Griffin, P. O. Box 183, La Porte, Ind.

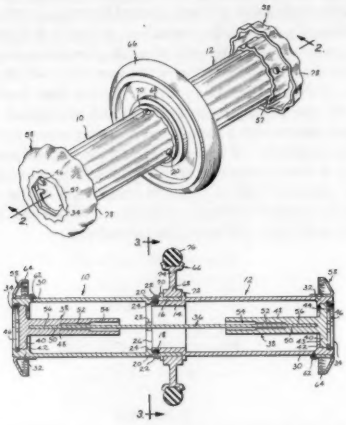
Filed Sept. 24, 1970, Ser. No. 75,211

Int. Cl. A63b *21/22*

U.S. Cl. 272—67 **11 Claims**

An exerciser which includes first and second interlocked tubular members each having outer and inner end parts. The second tubular member has its inner end part fitting within the inner end part of the first such member with one tubular member being rotative relative to the other. An elongated torsional member for resisting rotation of the tubular members is positioned within the members and extends from the outer end part of one member to the outer end part of the other

member. Each outer end part of the tubular members carries a retainer device for releasably engaging one end of the torsional member. Each torsional member retainer device is adapted to accommodate several torsional members of various sizes.



3,708,165

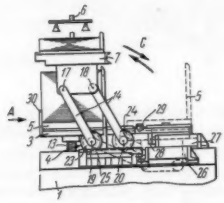
CHARGING DEVICE FOR AUTOMATIC PUNCH-PRESSES

Vitaly Konstantinovich Gilev, 811 proezd 65, kv. 16; Vyacheslav Dmitrievich Opov, ulitsa Papanina 99, kv. 24; Rafael Tevosovich Sarkisov, ulitsa Aga-Neimatully 20a, kv. 28, and Ernst Arakelovich Stephanian, ulitsa Druzhby Molodezhi 2, kv. 36, all of Baku, U.S.S.R.

Filed July 1, 1971, Ser. No. 158,948

Int. Cl. B65h *1/00*

U.S. Cl. 271—62 R **3 Claims**



A charging device for automatic punch presses comprises an immovable platform, a lifting table accommodating thereon a cassette with sheet material, said cassette being lifted while the sheets are fed to the zone of stamping, and a bracket-shaped frame displaceable along an arc in a vertical plane and serving to displace the emptied cassette downwards onto the immovable platform. Arranged from the inside on the sides of the frame are retainers intended for holding the lifted cassette after lowering the lifting table.

3,708,166

BUTTERFLY EXERCISE MACHINE

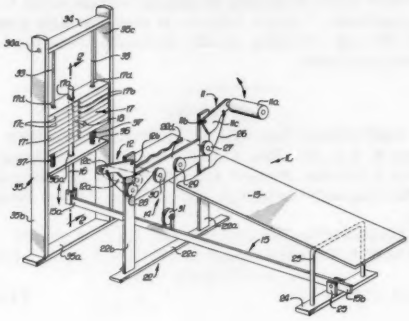
Robert F. Annas, Arcadia, Calif., assignor to Paramount Health Equipment Corp., Los Angeles, Calif.

Filed Sept. 13, 1971, Ser. No. 179,928

Int. Cl. A63b *21/32, 23/00*

U.S. Cl. 272—58 **11 Claims**

A butterfly exercising apparatus includes a pair of cranks pivotally mounted to a table supporting frame assembly for butterfly-like arcuate motion. Movement of either crank handle is transmitted by a cable and pulleys to a lever arm the free end of which is hinged to the bottom of a weight displacing shaft. A set of weights, adapted to slide along guide rods depending from a pivotable support member, are pinned to the shaft. Arcuate motion of either or both crank handles moves the lever arm, shaft and weights up and down, providing a selectable weight resist to the person using the exerciser.



3,708,167

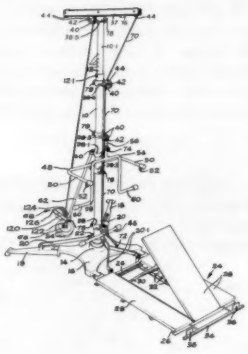
EXERCISING APPARATUS

Jacobus Daniel Potgieter, 948 Crots Street, Rietfontein, Republic of South Africa

Filed Dec. 17, 1970, Ser. No. 99,101

Int. Cl. A63b *21/08, 23/02*

U.S. Cl. 272—58 **10 Claims**

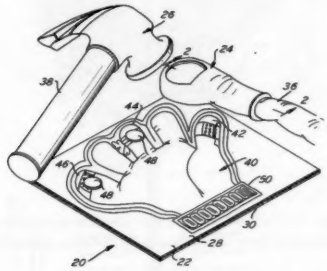


This invention relates to a body exercising apparatus for execution of a very large number of different exercises. The apparatus comprises a single upright post with a platform extending from one side of the bottom end and having pulley means on the top engaged by a cable of variable effective length. The cable is connected with one end in movement adjustable fashion to a weight carrying lever attached to the post on a side opposite to the platform side whereas the opposite end of the cable is connectable to any one of a plurality of separate devices for engagement by a person on the platform for exercising purposes. Additional pulleys for optional engagement by the cable, rigid bar members and means for locking of the lever are also associated with the post.

3,708,168
GAME APPARATUS

George C. Strader, San Dimas, and Adolph E. Goldfarb, North Hollywood, both of Calif., assignors to Mattel, Inc., Hawthorne, Calif.

Filed March 12, 1970, Ser. No. 18,986
Int. Cl. A63f 3/00
U.S. Cl. 273—1 R 1 Claim

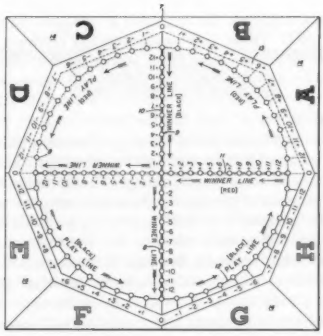


A game apparatus is provided which comprises a foam backed, vinyl sheet clad game board having the drawing of a hand thereon having various ones of the fingers bandaged. A first elongated member which simulates a thumb and a plurality of elongated members which simulate a hammer are provided for playing a game with a plurality of chips. The chips are placed on the bandaged fingers with the object of the game being for the player holding the thumb simulated member to slide a chip from a bandaged finger to the wrist of the hand on the game board before one of the players with a hammer simulating member can knock the chip away from underneath the thumb.

3,708,169
MATHEMATICAL CARD GAME

Alton P. Hoy, P.O. Box 464, Winnsboro, S.C.

Filed May 21, 1970, Ser. No. 39,475
Int. Cl. A63f 1/00, 1/02
U.S. Cl. 273—1 R 1 Claim

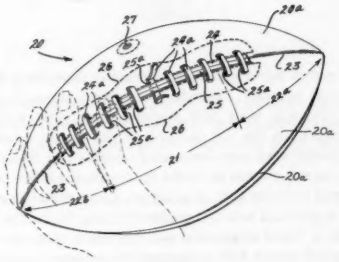


A mathematical card game playable by two or more persons with a deck of numbered cards of two suits each containing cards numbered in an arithmetical progression extending from a plus number through zero to the corresponding minus number. The game is played for tricks, each player following suit if possible. Each trick is taken by the card having the highest mathematical value and the game is won by the player having the highest positive score or total value of cards won or if played with a "pot" or if played with a "pot" or "kitty," by all players having positive scores. A player thus can win the most cards or tricks and still lose, if his cards either have a lower value than those of another player or have a negative value. Accompanying marked and unmarked pegs and a peg board having two sets of holes marked with the numbers on the cards, show the cards of the suit led played during each trick and also all of the cards previously played at any time during the game.

3,708,170
FOOTBALL

William R. Presnell, Dellwood, Mo., assignor to A-T-O Inc., Willoughby, Ohio

Filed Jan. 24, 1972, Ser. No. 220,175
Int. Cl. A63b 41/08
U.S. Cl. 273—65 A 8 Claims

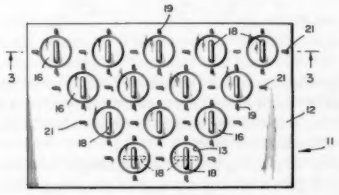


A football including an inflatable bladder insertion opening and in which an extended lacing length and corresponding cross loops are provided to accommodate football players with small hands and to improve the ball handling and passing manipulation. The lacing loops re extended out to a length of about 55–60 percent of the total length of a seam line.

3,708,171
BOARD GAME APPARATUS

I. Jordan Kunik, and Alvin L. Sitomer, both of New York, N.Y., assignors to I. Jordan Kunik and Alvin L. Sitomer, both of New York, N.Y., part interest to each

Filed Jan. 11, 1971, Ser. No. 105,558
Int. Cl. A63f 3/00
U.S. Cl. 273—130 R 6 Claims

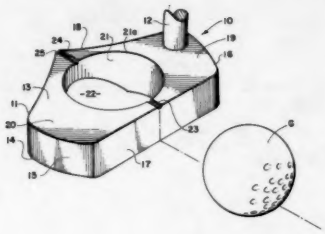


A board game with a plurality of pivotless rotatable game pieces mounted captive in the board and having integral index means on each game piece for the combined purpose of manipulating the game piece and indicating directionally whether the game piece is either "in play" or "out of play." Pivotless rotation of each game piece is provided by cooperating complementary curvatures of the peripheral surface of each game piece and the wall of the respective recess within which each game piece is located.

3,708,172
GOLF PUTTER

Joseph Frederick Rango, 708 West 32nd Street, San Pedro, Calif.

Filed March 15, 1971, Ser. No. 124,009
Int. Cl. A63b 53/00
U.S. Cl. 273—164 3 Claims

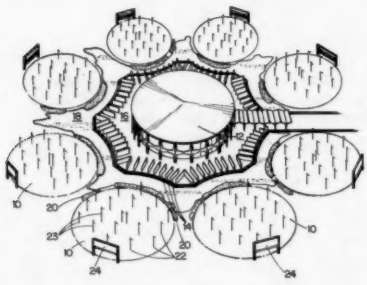


A golf putter has a generally vertically extending hole of circular cross section extending entirely through the head between the top wall and bottom wall. The hole splits a sighting mark on the top surface of the putter head into forward and rearward segments and divides the head into substantially equal masses in order to counterbalance tendencies of the head to twist out of position upon misaligned contact between a golf ball and the putter striking face. The hole may be used as a visual alignment aid and has a diameter sized for use as a quick check ball gauge and roundness detector.

3,708,173
GOLF GAME

Garfield J. Hewson, Jr., Four Puritan Road, Wenham, Mass.

Filed Dec. 15, 1970, Ser. No. 98,390
Int. Cl. A63b 67/02
U.S. Cl. 273—176 A 5 Claims



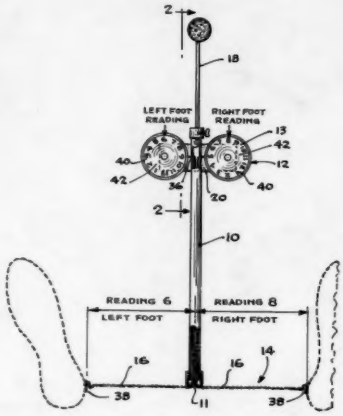
A golf game adapted to accommodate a great number of players and in which a player is automatically scored both with respect to the value of the hole into which a ball is played and the value of the ball selected.

A plurality of playing greens are arranged about a central building each green having a group of playing positions and a number of cups into which balls are played. The golf balls associated with each playing position are coded to designate the respective position as well as being coded to represent different designated ball values. Each cup also has an assigned scoring value and includes apparatus for sensing the entry of a ball therein. A scoreboard is associated with each green and is operative to display a score representing both the value of the cup into which a ball is played and the value of the played ball. The playing greens are separated from the central building by a moat. Golf balls may be retrieved from the cups and moved to a storage box by a system including negative pressure to draw balls along a pipe communicating with the cups.

3,708,174
GOLF STANCE DEVICE

Walter M. Kamarauskas, Warren Drive, Mokena, Ill.

Filed Jan. 31, 1972, Ser. No. 221,922
Int. Cl. A63b 69/36
U.S. Cl. 273—187 R 8 Claims

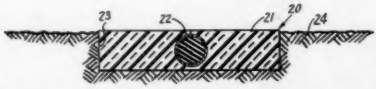


A golf stance guide comprising an elongate member to which indicator dials are attached. Cords normally stored within the elongate member are attached at either end respectively to a golfer's shoe and a dial so that the left-right dial readings indicating previously successful stances may be consistently repeated.

3,708,175
GOLF SWING PRACTICE DEVICE

Trentis E. Barney, 1719 Madrone Avenue, and Alexander Jay Clark, 1725 Madrone Avenue, both of West Sacramento, Calif.

Filed Nov. 11, 1971, Ser. No. 197,652
Int. Cl. A63b 69/36
U.S. Cl. 273—196 1 Claim



A golf swing practice device having a ball simulating portion formed in a generally flat member to provide an aiming point as the golfer practices his golf swings. The flat member may be made of transparent plastic material and may be seated in a recess in the ground. The ball simulating member has a contrasting color, a diameter equal to the diameter of a golf ball and may take the form of a disc fitted into an upper surface of the flat member, an embedded sphere viewable through the transparent plastic material, or the upper flat end surface of a cone-shaped member whose lower pointed end passes through the flat member and anchors same to the ground.

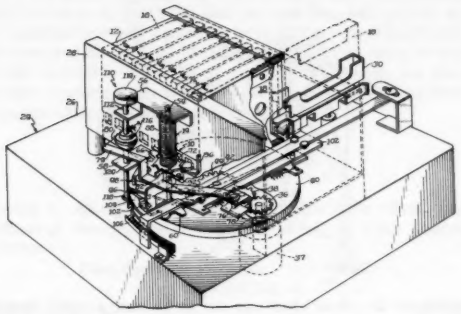
3,708,176
CASSETTE TRAY CONTROL MECHANISM

Robert Haake, Pasadena, Calif., and Joseph J. Ponzi, Alhambra, Calif., assignors to Bell and Howell Company, Chicago, Ill.

Filed June 29, 1970, Ser. No. 50,406
Int. Cl. G11b 23/12
U.S. Cl. 274—4 F 5 Claims

A cassette tray control mechanism operable to automati-

cally and sequentially place cassettes in a position for loading a tape recorder-reproducer for playing a plurality of cassettes



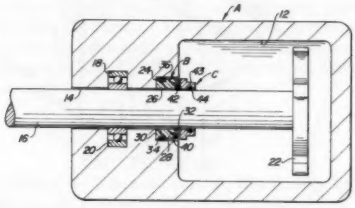
and operable to automatically return the tray for replaying the cassette thereby providing continuous reproduction.

3,708,177

MAGNETIC SEAL FOR A ROTARY SHAFT AND MAGNET THEREFOR

Max Baermann, 506 Bensburg, Cologne, Germany

Filed June 17, 1970, Ser. No. 47,024
Int. Cl. F16j *15/54*
U.S. Cl. 277—80 **16 Claims**



A magnetic seal for a rotary shaft includes a cylindrical magnetic member surrounding the shaft. The magnetic member includes an outer circumferential seal cooperating with a housing through which the shaft projects. A cylindrical magnetically attractive member also surrounds the shaft and includes an inner circumferential seal cooperating with the shaft. The magnetically attractive member rotates with the shaft and the magnet is stationary with the housing. A sealing member is interposed between the magnet and the magnetically attractive member. Magnetic attraction between the magnet and the magnetically attractive member draws the two members together to form a seal with the interposed sealing member. The magnet is molded of anisotropic ferrite permanent magnet material which is oriented in a radial direction during molding and is also radially magnetized.

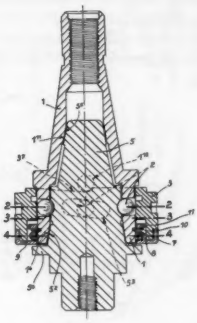
3,708,178

PROGRESSIVE-TIGHTENING SPINDLE CHUCK FOR MILLING MACHINES OR OTHER MACHINE TOOLS

Robert Lauricella, 16 Rue de la Vivaraise, Saint-Etienne, France

Filed July 24, 1970, Ser. No. 57,974
Int. Cl. B23b *31/10, 31/22*
U.S. Cl. 279—81 **7 Claims**

A tool-holding chuck having a tapered body in which a generally tapered socket-receiving chamber is formed, the socket and chamber having a pair of spaced tapered cooperative bearing surfaces, and a rotatable control ring encompassing the tapered body and being rotatably and axially manipulatable relative thereto for effecting quick-release and change of the socket positioned in the chuck body chamber.

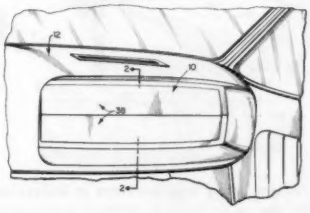


3,708,179

DOOR ASSEMBLY

Richard E. Hulten, Durham, N.H., assignor to McCord Corporation, Detroit, Mich.

Filed Aug. 7, 1970, Ser. No. 61,930
Int. Cl. B60r *21/00*
U.S. Cl. 280—150 AB **6 Claims**



A door assembly for an opening through which an inflatable safety device expands. The assembly includes a frame surrounding the opening, and at least one door element pivotally mounted on the frame. The door element is held in the closed position by a plurality of ears which extend laterally between the door element and the frame, and which are adapted to distort when an opening force is exerted against the door element by the inflatable safety device when the latter is expanded.

3,708,180

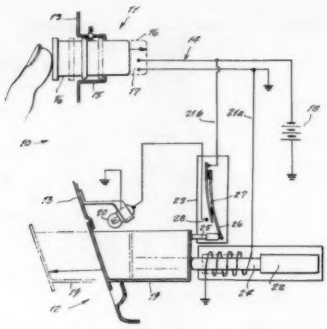
POWER OPERATED CIGARETTE LIGHTER

Jack L. Bird, Lowell, Ind.

Filed Dec. 7, 1970, Ser. No. 95,499
Int. Cl. B60n *3/12, 3/14*
U.S. Cl. 280—150 R **3 Claims**

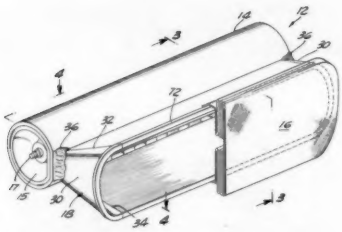
A cigarette lighter for an automotive vehicle, and wherein when the cigarette lighter is pushed in, the ashtray automati-

cally slides outward into operational use, the device comprising an auxillary electric circuit closed by the cigarette lighter



to activate a solonoid that pushes out the ashtray, and a switch that opens the auxillary circuit when the ash tray is again pushed inward.

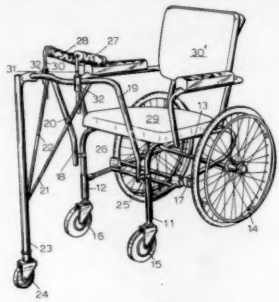
3,708,181
CONSTRUCTION FOR SAFETY AIR CUSHION SYSTEM
Bernard Mazelsky, West Covina, Calif., assignor to ARA, Inc., West Covina, Calif.
Filed Aug. 19, 1970, Ser. No. 65,019
Int. Cl. B60r *21/08*
U.S. Cl. 280—150 AB **15 Claims**



The invention is an improvement in inflatable air cushion systems for use as devices to protect passengers in vehicles. Pressure is transferred from an elongated gas container through a nozzle to an inflatable bag or envelope for inflating it. Openings are formed for transferring gas from the container through the nozzle by means of an explosive charge. The improvements of the herein invention reside in that the gas container and transfer means or nozzle are fabricated as separate parts. Spaced openings are provided in the nozzle along its length with solid portions or ribs between the openings. These openings are in the nozzle rather than in part of the elongated tank. The elongated tank and the nozzle are formed as extrusions. These parts are joined together by way of tongue and groove joints that form a strong joint preventing failure of the tank resulting from pressure.

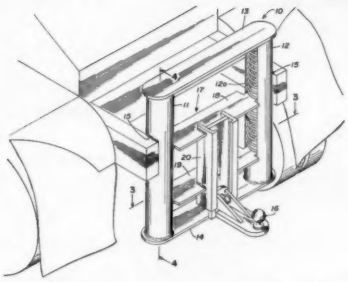
3,708,182
COMBINATION WHEEL CHAIR AND WALKER
Henry Markiel, 3 Idlewood Drive W.E., Jamestown, N.Y.
Filed Sept. 25, 1970, Ser. No. 75,528
Int. Cl. A61h *3/04*
U.S. Cl. 280—289 **1 Claim**

A walker and wheel chair combination is disclosed herein. The walker is made up of a single wheel supported by a U-shaped frame which is attached to the front legs of a wheel chair. The walker has adjustable arm rests. Thus a person



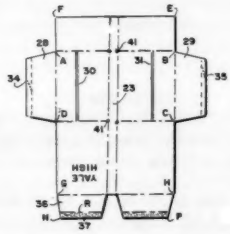
sitting in the wheel chair can rise to his feet, support himself on the walker and walk. When he tires of walking, he can sit down in the wheel chair.

3,708,183
TRAILER HITCH
Morris Jones, Gainesville, Tex., assignor to David Dale Lloyd, Gainesville, Tex., a part interest
Filed Dec. 11, 1970, Ser. No. 97,103
Int. Cl. B62d *59/00*
U.S. Cl. 280—483 **18 Claims**



An improved hitch for connecting a trailer, such as a large mobile home, to a towing vehicle is provided which includes a connector joint attached to a resiliently mounted drawbar adapted to move only in a substantial vertical plane. The resiliently mounted drawbar is carried by a frame which is adapted for immovable attachment to the rear of a towing vehicle.

3,708,184
BOOK COVER-EASEL COMBINATION
Bertram Slanhoff, 1243 Post Road, Scarsdale, N.Y.
Filed Nov. 30, 1970, Ser. No. 93,561
Int. Cl. B42d *3/06*
U.S. Cl. 281—33 **1 Claim**



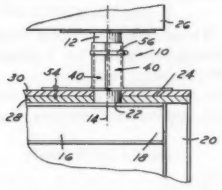
Preferrably made of a one-piece blank of relatively stiff paper material, a book cover when unfolded, forms a horizon-

tal tube structure comprising rear and bottom walls and a front upwardly, rearwardly slanted panel to support a book. This front panel has two full-height slits, spaced equally from each side edge respectively, and two side flaps swung to lie on its undersurface and extending beyond the slits respectively; the marginal lanes of the distal edge of each flap being pasted to the underside of the front panel, only between the slits, thereby forming pockets, the slits being the entrances thereto respectively for the book's cover panels.

3,708,185
FLASHING

Stanley A. Bilicki, 1150 Lenox, Bloomfield Hills, Mich., and Rans J. Blondo, 21637 Briarcliff Drive, St. Clair Shores, Mich.

Filed April 26, 1971, Ser. No. 137,252
Int. Cl. E04d 13/14
U.S. Cl. 285—42 **1 Claim**

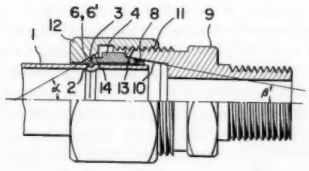


A flashing for sealing about the area of a structural member passing through a partition. A plurality of flashing elements, each having a base portion and an upstanding portion, are used in forming the flashing. The edges of both portions of the flashing elements have sealing flanges formed thereon. These sealing flanges cooperate when the elements are assembled to seal the area about the structural member.

3,708,186
PIPE JOINT

Tatsuya Takagi, 6-10 Araebisumachi, and Teruya Takagi, 6-4 Araebisumachi, both of Nishinomiya, Japan

Filed March 9, 1971, Ser. No. 122,424
Claims priority, application Japan, Dec. 5, 1970, 45/107740
Int. Cl. F16l 19/08
U.S. Cl. 285—341 **4 Claims**



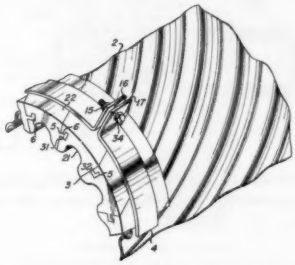
Pipe joint comprising a main body, a ring fitted in an annular groove of a pipe, a sleeve fitted over the pipe and a clamping member arranged to force the sleeve to move axially of the pipe into intimate engagement with the main body and the pipe.

3,708,187
CONDUIT SEAL

George L. Campbell, Scottsdale, Ariz., assignor to Garland Steel Company

Filed Feb. 7, 1972, Ser. No. 223,957
Int. Cl. F16l 21/06
U.S. Cl. 285—373 **8 Claims**

A device is disclosed for sealing abutted spirally corrugated conduits. The corrugations of each section of spirally corrugated conduits terminate on a bias. When two sections of spirally corrugated conduit are abutted, the conduits are rotated to obtain registration between the corrugations of one conduit with the corrugations of the abutted conduit, presenting a seemingly endless plurality of spirally wound corrugations. A plurality of sealing members, each having an undulating lower surface, are keyed to one another with the resulting

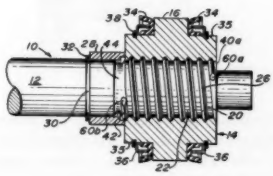


plurality of attached members wound about the abutting conduits. A tensionable band is secured about the outer surfaces of the members and aligned with the abutted conduits. The band is tensioned to compress the members, thereby sealing the members against the abutting conduits and against each other. The undulations on the inner surfaces of the members conform to the undulating surface of the conduit and thereby effect a seal between the abutting conduits.

3,708,188
PISTON AND ROD ASSEMBLY FOR PISTON AND CYLINDER DEVICES

Francis S. Flick, Oak Park, Ill., assignor to Miller Fluid Power Corporation, Bensenville, Ill.

Filed March 5, 1971, Ser. No. 121,271
Int. Cl. F16d 1/06
U.S. Cl. 287—20 P **2 Claims**



In the field of precision hydraulic and pneumatic power systems, a piston to piston rod mounting utilizing the cylindrical smooth rod surface and the smooth piston bore to hold concentricity and squareness of the piston to the rod and utilizing a helical retainer wire disposed in a vertical groove between the piston and rod and partially in both, and means to prevent rotation of the wire when disposed in the portion of the groove in either the piston or the rod while the other is being threaded to intended position.

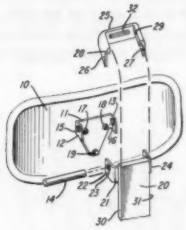
3,708,189
CHAIR BACK REST JOINT

Wayne W. Good, Sturgis, Mich., assignor to Harter Corporation, Sturgis, Mich.

Continuation-in-part of Ser. No. 67,068, Aug. 26, 1970, abandoned. This application July 29, 1971, Ser. No. 167,322
Int. Cl. F16c 11/00
U.S. Cl. 287—100 **6 Claims**

Chair back rest is joined to the supporting upright thereof by two mating clevises pivotally held together by a pin. The pin is retained in place by an inverted, substantially U-shaped

bumper which frictionally engages the top portion of the upright and the forked ends of the outer mating clevis. In a

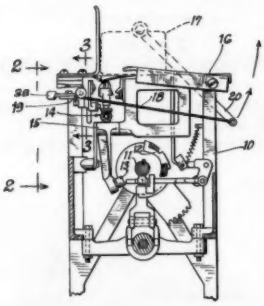


preferred embodiment, the downwardly-depending legs of the bumper are provided with latching means at the terminal portion thereof.

3,708,190
DUAL TENSION STRING HOLDER

Robert G. Beedy, Hometown, Ill., assignor to B. H. Bunn Company, Alsip, Ill.

Filed March 15, 1971, Ser. No. 123,974
Int. Cl. B65h *69/04*
U.S. Cl. 289—13 **5 Claims**



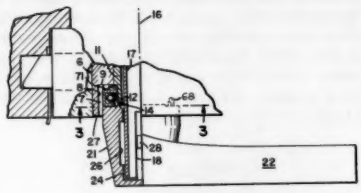
An automatically operated device for alternately increasing and decreasing the tension on the retained end of the twine in a knotting mechanism used in a twine tying machine. The standard knotting mechanism is used in connection with a standard string holder, the latter normally having a compression spring to exert pressure on the retained end of the twine to hold said end while the twine is being wrapped around a bundle or the like and thereafter while a knot is being tied in the ends of the wrapped twine. Means are provided for increasing the compression of the spring while the twine is being wrapped around a bundle, and for reducing the said spring compression while the knot is being tied.

3,708,191
AUXILIARY SPRING UNIT FOR LOCKS

Denes Hegedus, San Francisco, Calif., assignor to Schlage Lock Company

Filed June 23, 1971, Ser. No. 155,720
Int. Cl. E05c *21/00*
U.S. Cl. 292—1 **7 Claims**

An auxiliary spring unit is for use with locks having a frame with a flat thereon and having a hand hold adapted to be mounted on a spindle rotatable on the frame. The unit has a capsule including a cylindrical cup with an inturned flange. A ring is rotatably disposed within the cup and has walls defining axially extending pockets. A closure plate interlocked with the flange has a flat engaging the flat on the frame and has lugs extending axially toward, or in substantially axial alignment with,

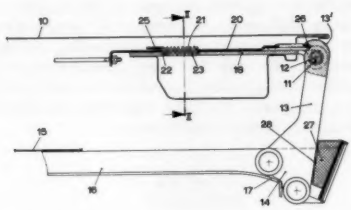


the pockets. Springs curved within the cup bear simultaneously against the pocket walls and against the lugs to act as yieldable positioning devices.

3,708,192
SLIDING DOOR ARRANGEMENT FOR MOTOR VEHICLES

Horst Klebba, Weyhausen, and Ernst Maneck, Tappenbeck, both of Germany, assignors to Volkswagenwerk Aktiengesellschaft, Wolfsburg, Germany

Filed July 12, 1971, Ser. No. 161,634
Claims priority, application Germany, Aug. 7, 1970, P 20 39 237.4
Int. Cl. E05c *19/00*
U.S. Cl. 292—261 **6 Claims**



In a motor vehicle, a sliding door compartment and latching mechanism therefor comprising a pivot arm coupled by a hinge in a rotatable fashion to the sliding door arrangement about a vertical axis, the pivot arm having a free end on which a roller carriage is mounted for running in a horizontally placed guiding rail when such siding door is opened or closed, a guiding arch member on the guiding rail means facing the inner space of the vehicle, said guiding arch means being provided at an end portion of the guiding rail means which is away from the door opening, boss-like projection provided on the pivot arm in the region of the hinge, a latching member mounted behind the boss for preventing an unintended closing of the sliding door arrangement, a spring means biasing the latching member, whereby an unintended closing of the sliding door is prevented when the pivot arm has been brought into an angular position by means of the roller carriage being rolled into the guide arch, which angular position of the pivot arm corresponds to an open position of the sliding door.

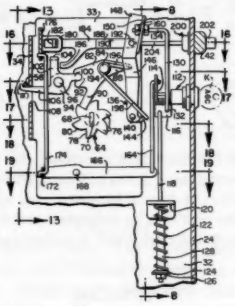
3,708,193
AUTOMATIC DOOR LOCKING MECHANISM

Antonio G. Caporicci, 608 Richmond Ave., Buffalo, N.Y.

Filed Nov. 4, 1970, Ser. No. 86,816
Int. Cl. E05c *19/00*
U.S. Cl. 292—280 **15 Claims**

An automatic locking mechanism for a car door which is operatively associated with a door jamb having a keeper and which includes a longitudinal outer panel, a transverse jamb panel and a longitudinal interior flange, such mechanism in-

cluding a latch mounted on the jamb panel and operatively associated with the keeper, a detent mounted on the jamb panel and operatively associated with the latch, a detent actuating member mounted on the jamb panel and operatively associated with the detent, an externally key-actuated and automatically deactuated detent locking mechanism mounted on the outer panel, jamb panel and interior flange and operatively associated with the detent actuating member, and an externally manually actuated and deactuated detent unlocking

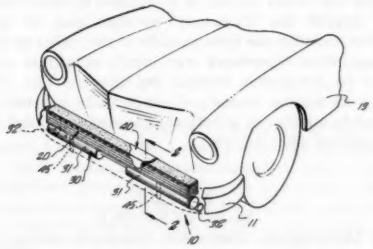


mechanism mounted on the outer panel and operatively associated with the detent locking mechanism, whereby only upon key-actuation of the detent locking mechanism will actuation of the detent unlocking mechanism unlock the door from the outside whether opened or closed, and upon subsequent deactuation of such detent unlocking mechanism the door automatically will be locked from the outside whether opened or closed and will remain locked form the outside upon closing without actuation of either the detent locking mechanism or unlocking mechanism.

3,708,194
VEHICLE SAFETY APPARATUS

Aster Ma. Amit, 339-B Pasadena Avenue, South Pasadena, Calif.

Filed May 24, 1971, Ser. No. 146,361
Int. Cl. B60r *19/10, 21/02*
U.S. Cl. 293—1 **17 Claims**

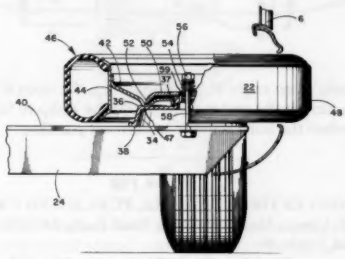


A safety apparatus is disclosed in which an inflatable is provided for the front of an automobile to provide a cushion for the vehicle and its passengers during a collision. The inflatable is connected to a supply of compressed fluid and is enclosed by a cover during non-use, which is adapted to be detachably opened upon inflation of the inflatable. The supply of compressed fluid can also be utilized for fire extinguishing purposes.

3,708,195
IMPACT SOFTENING DEVICE FOR AUTOMOBILES

Edward Kottsieper, Dresden, Maine

Filed Jan. 27, 1972, Ser. No. 221,353
Int. Cl. B60r *19/10*
U.S. Cl. 293—72 **7 Claims**

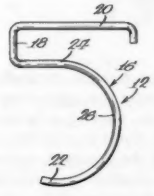


An impact softening device or bumper for use on automotive vehicles consisting of resilient wheels rotatably mounted with adjustable braking means in horizontal position on vertical axles which are rigidly attached to extensions of the vehicle frame at the front and/or rear corners thereof. The resilient wheels are substantially in alignment with the front and rear wheels of the vehicle. The resilient surfaces of the horizontal wheels extend longitudinally and laterally several inches beyond the most protruding part of the vehicle body to give substantial protection when an obstacle is encountered.

3,708,196
PIPE HOOKS

James H. Snell, Route 4, Kalispell, Mont.

Filed Nov. 12, 1970, Ser. No. 88,566
Int. Cl. B65g *7/12*
U.S. Cl. 294—26 **1 Claim**



A hand-tool for carrying a section of irrigation pipe which includes a pair of hooks held at spaced points along the pipe section for supporting the pipe. Each hook has a portion in which the pipe is loosely received. When the hooks are canted with respect to the pipe, the receiving portion of each hook grips the pipe and holds it against rotation about its longitudinal axis.

A method of carrying a length of pipe, including the steps of placing a pair of hooks about a pipe section, holding the pipe against rotation about its longitudinal axis and lifting the pipe while continuously holding the same.

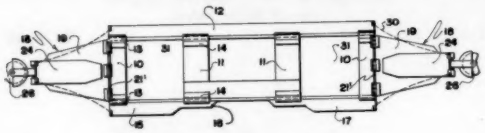
3,708,197
TRUCK HOIST CRADLE

Donald James Rowan; Kenneth Lorne Rowan, both of P.O. Box 91, and Larry James Rowan, P.O. Box 54, all of Elkhorn Manitoba, Canada

Filed Aug. 16, 1971, Ser. No. 172,155
Int. Cl. B66c *1/12*
U.S. Cl. 294—67 E **10 Claims**

A pair of end members are hinged to wheel well and plates and hinged ramps extend across the ends of the wheel well

members. Chains or cables extend between said members and the ramps to raise the end members vertically and the ramps



upwardly at an angle to the floor when the hoist is raised. The chains permit the end members and the ramp to lie flat on the floor when the hoist is in the lowermost position.

3,708,198

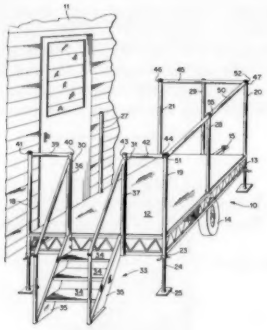
CONVERTIBLE TRAILER, PORCH AND CAMPER

Glen T. Coons, Mansker Creek Trail Park, 2440 North Gallitin Road, Nashville, Tenn.

Filed Jan. 29, 1971, Ser. No. 111,001

Int. Cl. B60g *3/32*

U.S. Cl. 296—23 R **10 Claims**



A wheeled platform having vertically adjustable leveling standards at each corner for supporting the platform in stationary, level position, spaced columns projecting upward from the edges of the platform; top rails removably supported upon the top ends of the columns; and a detachable step assembly to permit the platform to function as a portable porch for a mobile home or trailer. Side rails removably and adjustably supported upon the columns beneath the top rails in vertically spaced relationship also provide containing walls, to permit the platform to function as a utility trailer with the leveling standards raised and the step assembly removed. Some of the columns on both sides of the platform are provided with upper tubular sockets to receive the depending legs of a canopy frame for supporting a canopy above the platform to function as a camp in a vehicle.

3,708,199

COLLAPSIBLE SHELTER UNIT

Norman J. Throssell, 32 Mill Street, Mira Loma, Calif.

Filed April 8, 1971, Ser. No. 132,277

Int. Cl. B60p *3/34*

U.S. Cl. 296—23 MC **4 Claims**

A collapsible shelter unit which can be unfolded and erected in a few minutes to form a relatively roomy structure which can be used alone as a form of tent, or in combination with a pickup truck to make up into a camper. The unit comprises a box-like structure having side and end walls to which other panels are hinged so that they can be swung out to form horizontal bedding support shelves projecting laterally from said side walls, and upstanding extensions to said end walls. The upstanding end wall extensions have side wings hinged to their outer side edges, and these wings swing out to form end walls for said bedding support shelves. The sides and ends lock together to form a relatively rigid enclosure covered by a fabric top. The fabric top is attached along its side edges to the

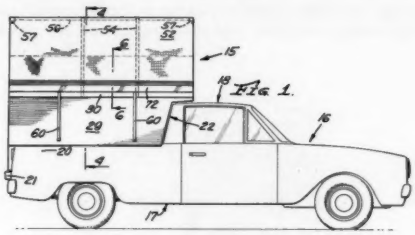


Fig. 1.

side panels, and its end edges overhang the top edges of the end panels and are drawn down to a snug fit by means of purse strings in the fabric. A door is hinged to one of the end walls to permit entry. The unit can be collapsed and folded in on itself to form a compact, fully enclosed, weather-tight box.

3,708,200

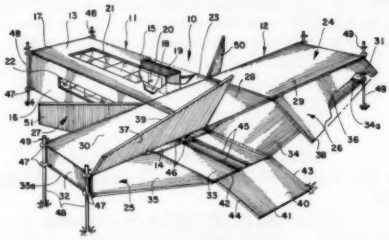
COMBINATION HOUSE TRAILER AND AIRPLANE HANGAR

Daniel E. Richards, 3059 Austin Street, Santa Susana, Calif.

Filed Dec. 17, 1970, Ser. No. 99,056

Int. Cl. B60p *3/42*

U.S. Cl. 296—23 R **14 Claims**



An elongated trailer capable of being towed by a vehicle stores disassembled portions of a sectional and collapsible framework.

When the trailer arrives at a location to rendevous with a small aircraft the framework portions may be assembled together and with the front portion of the trailer so the trailer and assembled framework may jointly constitute an aircraft hangar to completely enclose the aircraft. The collapsible framework may be rearranged and partially inverted from one position to another to selectively accommodate high wing aircraft and low wing aircraft.

3,708,201

BICYCLE SADDLE

Klaus Lamkemeyer, Guetersloh, Germany, assignor to Mertens & Co. Kommanditgesellschaft, Guetersloh-Westfalen, Germany

Filed Jan. 15, 1971, Ser. No. 106,783

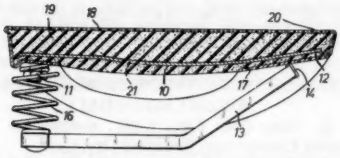
Claims priority, application Germany, March 2, 1970, G 70 07 538.6

Int. Cl. B62j *1/18, 1/04*

U.S. Cl. 297—214 **6 Claims**

A bicycle saddle has a metal plate body and a foam rubber covering for the plate body surrounding it and extending between it and an envelope. The plate body is supported at its rear end by coil springs fastened to longitudinal bridge mem-

bers, the front ends of which have heads engaging in slots in the front or neck part of the plate body to form bayonet joints.



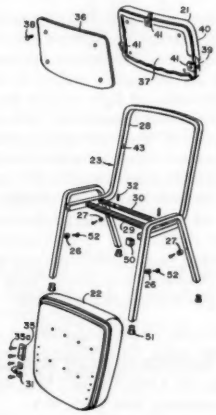
The envelope is turned under at the rear and neck ends of the saddle, and secured to the foam covering together with the plate during the foaming operation.

3,708,202

INDEPENDENT SEAT RISE STACKING AND ROW CHAIR

Chester J. Barecki, and William S. Lindberg, both of Grand Rapids, Mich., assignors to American Seating Company, Grand Rapids, Mich.

Filed Jan. 22, 1971, Ser. No. 108,885
Int. Cl. A47c *1/124, 3/04*
U.S. Cl. 297—239 **6 Claims**



A stacking and row-forming chair is equipped with arch sides connected by forwardly turned portions of an inverted U-shaped back frame, and spaced parallel tubes extend between said back frame portions, on the rearmost of which tubes is rotatably mounted the cushion-bearing seat of the chair. The chairs may be anchored in rows by detachable arm rest members.

3,708,203

VEHICLE ATTENDANT'S CHAIR

Chester J. Barecki and Walter E. Nordmark, both of Grand Rapids, Mich., assignors to American Seating Company, Grand Rapids, Mich.

Filed October 16, 1970, Ser. No. 81,316
Int. Cl. B60n *1/02*
U.S. Cl. 297—346 **5 Claims**

A chair or seat is spring-supported on a cylindrical support mounted on the end of a horizontal beam, the other end of the beam being fixed to a rotatable sleeve carried by a vertical

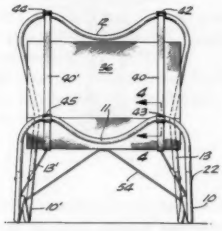
support fixed to a base and with releasable means for locking the sleeve in selected stored and operating positions.

3,708,204

COLLAPSIBLE FURNITURE FROM TUBULAR FRAME SECTIONS OF PREDETERMINED SHAPE

Judith M. Wachsmann, 2221 Ferndell Place, Hollywood, Calif.

Filed Feb. 16, 1971, Ser. No. 115,253
Int. Cl. A47c *7/02*
U.S. Cl. 297—440 **8 Claims**



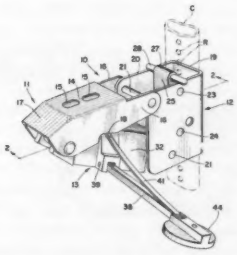
A limited number of tubular frame sections of similar predetermined shape are provided. Frame sections can be secured together by way of inserts. The frame sections are shaped so that they can be manually assembled into various articles of furniture as for example a chair, an ottoman, or a table, the articles having suitable strength and rigidity and being foldable or collapsible into a compact condition. Various types of flexible material is attachable to the assembled frames to form seating material.

3,708,205

ADJUSTABLE BACK REST SUPPORT FOR CHAIRS

Heinz Rothermel, 604 Bloor Street West, Apt. B, Toronto, Ontario, Canada

Filed Jan. 18, 1971, Ser. No. 107,026
Int. Cl. A47c *7/40*
U.S. Cl. 297—355 **4 Claims**



This specification disclosed an adjustment device for a back rest cushion or chair back which may readily be fastened in

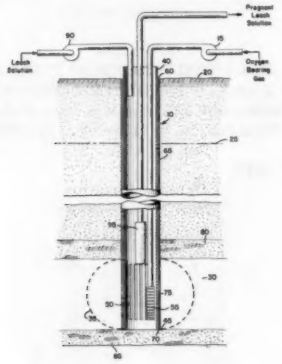
position against the underside of the seat cushion of the chair, and which incorporates means for adjusting the height of the back rest cushion, and separate means for adjusting the angular location of the back rest cushion, both such means being operated by simple spring loaded locking means, so that an adjustment may be made while actually sitting in the chair, with the locking device snapping into place as soon as the most desirable position is reached.

3,708,206

PROCESS FOR LEACHING BASE ELEMENTS, SUCH AS URANIUM ORE, IN SITU

Robert A. Hard, Lewiston, and Robert L. Ripley, Niagara Falls, both of N.Y., assignors to Union Carbide Corporation, New York, N.Y.

Filed July 20, 1970, Ser. No. 56,373
Int. Cl. E21b *43/28*
U.S. Cl. 299—5 **21 Claims**



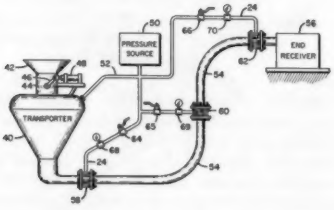
This invention relates to a process for leaching base elements, such as uranium values, from an underground water saturated ore deposit containing oxidizable materials such as sulfides, carbon and the like. An oxygen bearing gas is introduced into the ore deposit prior to or simultaneously with a leach solution to oxidize the base elements within the ore deposit to a soluble state where they can then be dissolved in the leach solution. Thereafter the pregnant solution is withdrawn and treated by conventional techniques to remove the base elements.

3,708,207

HIGH PRESSURE BOOSTER VALVE

James R. Steele, St. Paul, Minn., assignor to Dynamic Air Inc., Saint Paul, Minn.

Continuation-in-part of Ser. No. 886,091, Dec. 18, 1969, abandoned. This application April 16, 1971, Ser. No. 134,764
Int. Cl. B65g *53/28, 53/58*
U.S. Cl. 302—24 **7 Claims**



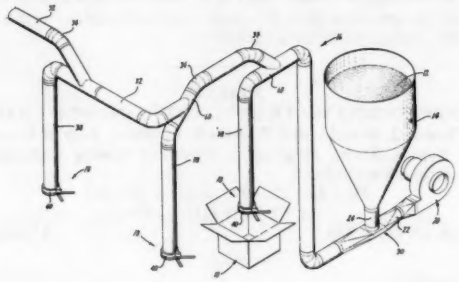
A pneumatic conveyor tube booster valve constructed from an annular tapered rubber sleeve in line with the tube and a sealed pressurized housing surrounding the sleeve portion of the tube. Pressurized gas introduced into the housing escapes past the rubber sleeve when the tube pressure drops below the housing pressure by a predetermined amount and enters the tube in substantially the same direction in which material in the tube is moving. Annular lips on the conveyor tubes supports the rubber sleeve against pressures in the tube.

3,708,208

SYSTEM FOR SELECTIVE DISTRIBUTION OF LIGHT WEIGHT MATERIALS

Gunter G. Fuss, Daly City, Calif., assignor to Free-Flow Packaging Corporation, Redwood City, Calif.

Filed Nov. 2, 1970, Ser. No. 86,112
Int. Cl. B65g *53/04*
U.S. Cl. 302—28 **16 Claims**



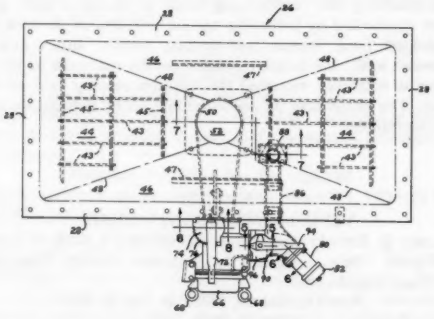
A system (method and apparatus) for rapidly and selectively conveying and distributing light weight materials in subdivided free flowing form. The system operates in conjunction with blower and air dissipating means to selectively deliver predetermined amounts of light weight materials to various remote distribution outlets associated with a generally closed air conveyance system. The system makes use of volumetric air dissipating means at each such outlet which operate both to discharge predetermined amounts of the subdivided light weight materials at such outlets and to replace from a central source only the amounts of material discharged. The system has utility in the distribution of predetermined amounts of subdivided materials (e.g., cushioning and packaging materials, dry cereals, chemicals and similar light weight materials) to localized filling and packaging operations.

3,708,209

PNEUMATIC HOPPER OUTLET FOR RAILWAY CARS

Richard H. Dugge, St. Louis County, Mo., assignor to ACF Industries, Incorporated, New York, N.Y.

Filed April 5, 1971, Ser. No. 131,129
Int. Cl. B65g *53/40*
U.S. Cl. 302—52 **6 Claims**



A railway car hopper outlet structure for discharging particulate material pneumatically includes a unitary discharge

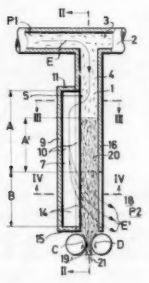
assembly mounted under the discharge opening of the outlet. A discharge tube extends from the housing longitudinally of the car, and an air inlet conduit adapted to be connected to an air pressure hose has one branch supplying air to the interior of the outlet for fluidizing the lading therein and pressurizing the car and another branch connected to the discharge tube for moving the lading therethrough. Manually actuated valves are adapted to close the discharge tube and the air inlet branch connected thereto, and check valves are provided in said branch and in the main portion of the air inlet conduit for preventing the back flow of air and lading.

3,708,210

METHOD AND APPARATUS FOR SEPARATING OPENED FIBER FLOCKS FROM AN AIR STREAM

Paul Stahel, Wilen near Wil, and Paul Staheli, Winterthur, both of Switzerland, assignors to Rieter Machine Works, Ltd., Winterthur, Switzerland

Filed July 26, 1971, Ser. No. 166,098
Int. Cl. B65g *53/40*; B01d *49/00*
U.S. Cl. 302—59 **25 Claims**



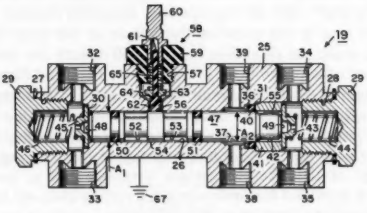
The air stream which conveys the fiber flocks into the feed chubes is passed out of the chutes to permit depositation of the fiber flocks and thereafter is passed through the column of flock in the chutes or the flock layer pulled out of the chutes to filter out dust and other particles in the air.

3,708,211

CONTROL VALVE SYSTEM

Richard C. Bueler, Glendale, Mo., assignor to Wagner Electric Corporation, Newark, N.J.

Division of Ser. No. 626,515, March 28, 1967, Pat. No. 3,448,230. This application Oct. 17, 1968, Ser. No. 768,289
Int. Cl. B60t *8/26, 17/22*
U.S. Cl. 303—6 C **9 Claims**



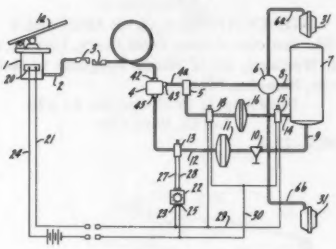
A system having a dual master cylinder for normally transmitting actuating fluid pressure directly to front vehicle brakes and also transmitting another actuating fluid pressure through a proportioning valve to predeterminately reduce the magnitude thereof to rear vehicle brakes, and a control valve responsive to failure of said first named actuating fluid pressure to by-pass said other actuating fluid pressure directly to said rear vehicle brakes and obviate the predetermined reduction in the magnitude thereof.

3,708,212

BRAKE APPLICATION SYSTEM

Joseph L. Cannella, Melrose Park, Ill., assignor to Berg Mfg. & Sales Co., Des Plaines, Ill.

Filed Jan. 15, 1971, Ser. No. 106,851
Int. Cl. A46d *1/04*
U.S. Cl. 303—7 **6 Claims**



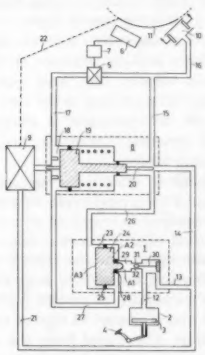
A vehicle brake application system including means effective to backfill a main service line in response to actuation of a brake application valve.

3,708,213

ANTI-LOCK BRAKE SYSTEMS

Derek Robert Skoyles, East Grinstead, England, assignor to U.S. Philips Corporation

Filed June 3, 1970, Ser. No. 43,157
Claims priority, application Great Britain, June 27, 1969, 32,612/69; Aug. 6, 1969, 39,417/69
Int. Cl. B60t *8/04*
U.S. Cl. 303—21 AF **6 Claims**



An anti-lock vehicle brake system having a fluid pressure source for producing brake fluid under pressure at the wheel brake so as to apply braking pressure to the wheel in response to manual braking action by the operator. Also provided is a wheel movement sensing means for producing an output function in response to a related wheel rotational movement, and an anti-lock control valve actuatable in response to said output function and effective to divert brake fluid from the wheel brake so as to relieve braking pressure and thereby avoid wheel locking. A fail-safe arrangement is connected in the system for by-passing the anti-lock system in the event of malfunction of said anti-lock control valve so as to reapply full brake pressure to the wheel brake. The fail-safe arrangement includes a differential pressure member displaceable between a normal position and an operative position in response to a difference in fluid pressure acting on opposite ends thereof.

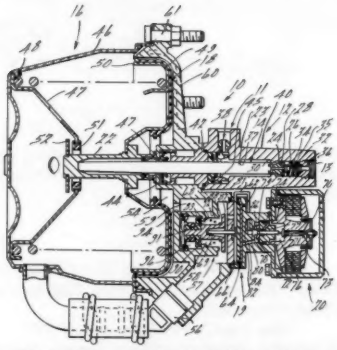
Two different reference pressures act on different surface areas of the pressure member so that when the brake pressure falls to a critical low value the pressure member will be displaced from its normal position to its operative position in which a by-pass connection is established and fluid pressure is permitted to increase at the brake to restore braking pressure as a result of fluid being passed through the actuated control valve.

3,708,214

SKID CONTROL VALVE ASSEMBLY

Hugh E. Riordan, Ann Arbor; Peter Every, Livonia, and Frank E. Hill, Westland, all of Mich., assignors to Kelsey-Hayes Company, Romulus, Mich.

Filed Aug. 6, 1970, Ser. No. 61,620
Int. Cl. B60t *8/08*
U.S. Cl. 303—21 F **20 Claims**



A skid control valve assembly including a force motor assembly for controlling the skidding of a vehicle under braked conditions, the force motor assembly being provided with variable duty cycle pulses from a control system which provides a signal wave form to control the position of the fluid pressure controlling device in one of three conditions; the first being "dump" mode of operation wherein the force motor is controlled to preclude braking pressure from being supplied to the wheels of the vehicle, the "hold" mode of operation wherein the braking force present at the time the system goes into the hold mode of operation is maintained, and the "return" mode of operation wherein braking pressure is returned to the vehicle wheels.

The control system is effectively responsive, during the deceleration portion of the wheel cycle, to a critical slip signal, the signal being generated in response to a sensed difference between a hypothetical vehicle deceleration, as approximated by a decreasing ramp signal, and the vehicle wheel speed. The system is also responsive during the acceleration portion of the wheel cycle, to the sensing of certain conditions of a wheel acceleration signal and a change in sign of the rate of change of wheel acceleration. The signal from the circuit described above is fed to a logic circuit which controls the operation of a variable duty cycle pulse generator, the duty cycle of the pulse generator being modulated in accordance with the sensed condition at the wheel, the initial, increasing portion of the duty cycle range creating the dump mode of operation, the intermediate, constant range duty cycle creating the hold mode of operation and the final, decreasing duty cycle range providing the return mode of operation.

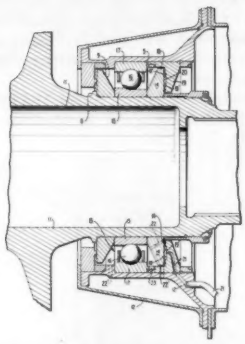
The force motor includes a movable element in the form of a nonferrous cup and coil which may be operated in two fixed positions and a third variable position, the coil being energized with the variable duty cycle pulses to cause the pressure controlling plunger to be either in the return or deactuated position where no signal is provided from the control circuit or a decreasing-to-a-minimum duty cycle signal, a skid signal or dump mode of operation which disconnects the manually actuated brake cylinder hydraulically to the wheel cylinders to provide substantially zero braking pressure, and the hold position which maintains the pressure being fed to the wheels at the time the hold position is achieved. This latter position is actually a range of positions for the armature, the position being selected as a function of the position of the armature when the hold mode is entered.

3,708,215

HYBRID BOOST BEARING ASSEMBLY

Donald F. Wilcock, and Leo W. Winn, both of Schenectady, N.Y., assignors to Mechanical Technology Incorporated, Latham, N.Y.

Filed Nov. 14, 1968, Ser. No. 775,672
Int. Cl. F16c *32/00*
U.S. Cl. 308—35 **13 Claims**

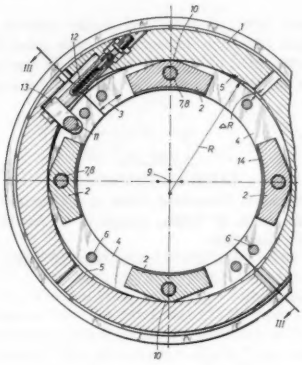


A hybrid boost bearing assembly is described for a rotating shaft member which is rotatably supported on a base member. The hybrid boost bearing assembly comprises a rolling element bearing for rotatably supporting the shaft member on the base member during starts, stops, reverse thrust loadings and under emergency operating conditions, and a fluid film bearing acting singly or coacting with the rolling element bearing for absorbing the loads imposed on the shaft member during all other conditions of operation. A fluid lubricant supply is provided for supplying fluid lubricant to the bearings and means are provided for shifting the loading of the rotating shaft member from the rolling element bearing to the fluid film bearing as the rotating shaft member is brought up to its normal operating speed. The means for shifting the loading from the rolling element bearing to the fluid film bearing comprises the generation of pressure in the fluid film space between the opposed fluid film bearing surfaces, by hydrodynamic action, from an external source of pressure, or by some other means, thereby causing the fluid film bearing to assume a greater share of the load of the rotating shaft as it is brought up to normal operating speed. As a result, the rolling element bearing will assume substantially the full load of the rotating shaft only during starting, stopping, reverse loading periods, and in the event of the failure of the fluid lubricant supply, while the fluid film bearing will absorb the shaft loads under all other conditions of operation. The fluid film bearing may comprise a hydrodynamic bearing for producing a self-acting fluid film, a hydrostatic bearing, or a hybrid hydrodynamic-hydrostatic bearing, and the rolling element bearing may comprise a ball bearing, roller bearing, needle bearing, or the like. In certain arrangements a preloading spring is provided for preloading the rolling element bearing a predetermined amount so that the rolling element bearing assumes a predetermined proportionate share of the loading on the rotating shaft under certain operating conditions. In other arrangements, a retractable bearing piston portion which moves towards and retracts from an opposed, load-sustaining bearing surface is employed to cause the fluid film bearing to assume the load from the rolling element bearing. In other arrangements, a spherically-shaped self-aligning seat is provided which coacts with a complementary-shaped seating surface to accommodate misalignment in the rotating shaft supported by the bearing assembly.

3,708,216
ADJUSTABLE BEARING

Paul Gerling, Essen, Germany, assignor to Glyco-Metall-Werke Daelen & Lovs GmbH, Wiesbaden-Schierstein, Germany

Filed July 27, 1971, Ser. No. 166,497
Claims priority, application Germany, July 28, 1970, P 20 37 440.7
Int. Cl. F16c *17/06*
U.S. Cl. 308—73 **8 Claims**

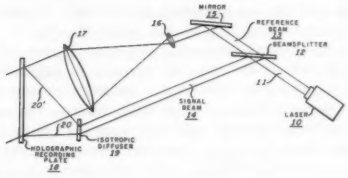


An adjustable bearing with at least three radial segments arranged within and bearing against the housing of the bearing and adjustable relative to the housing by positioning ring means, the segments being pivotally supported by said positioning ring means.

3,708,217
HOLOGRAPHIC NON-ISOTROPIC DIFFUSING SCREEN

Donald H. McMahon, Carlisle, Mass., assignor to Sperry Rand Corporation

Filed April 28, 1971, Ser. No. 138,228
Int. Cl. G02b *27/22*
U.S. Cl. 350—3.5 **8 Claims**



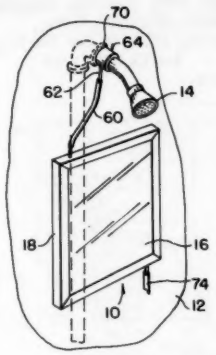
A method and apparatus for constructing a holographic non-isotropic diffusing screen to produce a diffuse light beam of predetermined directionality having use in micro-holographic recording and reading apparatus.

3,708,218
WATER HEATED MIRROR FOR CONDENSATION CONTROL

Charles M. Smillie, III, 4220 Iverness, Orchard Lake, Mich.

Division of Ser. No. 812,155, April 1, 1969, Pat. No. 3,594,063. This application Dec. 3, 1970, Ser. No. 94,780
Int. Cl. G02b
U.S. Cl. 350—61 **6 Claims**

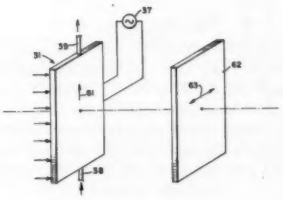
The water heated mirror includes a shell and a glass mirror panel which define a conduit type chamber on the reverse surface of the mirror panel in heat exchange relationship therewith through which hot water flows to elevate the temperature of the glass panel and prevent condensation of moisture on the reflecting surface thereof. The side and bottom end walls of the shell are provided with drain openings for the gravity drainage of spent water from the interior of the chamber.



3,708,219
LIGHT VALVE WITH FLOWING FLUID SUSPENSION

Matthew Forlini, Ozone Park; Francis C. Lowell, Roslyn, and Robert L. Saxe, New York City, all of N.Y., assignors to Research Frontiers, Inc., Plainview, N.Y.

Continuation of Ser. No. 25,541, April 1, 1970, abandoned. This application Aug. 24, 1971, Ser. No. 174,494
Int. Cl. G02f *1/26*
U.S. Cl. 350—150 **25 Claims**

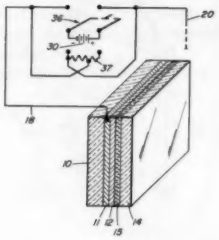


A light valve having a cell containing a fluid suspension of minute particles dispersed therein capable of orientation by an electric or magnetic field to change the transmission of light through the suspension, and means for applying such a field thereto, includes circulating means for producing a flow of the fluid suspension through the cell during operation thereof to reduce or avoid agglomeration of the particles. Various means are described for producing a smooth generally laminar flow of the fluid suspension in the active region of the cell. The circulating means may include means for dispensing agglomerated particles which may be produced during cell operation. A sheet for polarizing material in the path of light from the valve, with its direction of polarization perpendicular to fluid flow in the cell, markedly increases the closing speed. Two valves with fluid flow at right angles increases the closing speed without seriously decreasing the density ratio between closed and open states.

3,708,220
HIGH CONDUCTIVITY ELECTROLYTE GEL MATERIALS

Marion Douglas Meyers, Stamford, and Thomas Anthony Augurt, Bridgeport, both of Conn., assignors to American Cyanamid Company, Stamford, Conn.

Filed May 25, 1970, Ser. No. 41,155
Int. Cl. G02f *1/28*
U.S. Cl. 350—160 R **7 Claims**

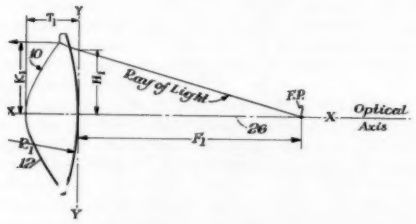


An electro-optical device is provided which is useful in control of visible and infrared absorption by windows, data display devices and the like typically comprising in sandwich arrangement a pair of electrodes, and disposed therebetween, two identical layers of transition metal electrochromic compounds separated by a semi-solid highly conductive sulfuric acid gel electrolyte. The gel exhibits good conductivity, stability and compatibility with the electrochromic layers.

3,708,221
ASPHERIC LENS AND METHOD OF MANUFACTURE

Howard A. Schaefer, Lancaster, Ohio, assignor to Anchor Hocking Corporation, Lancaster, Ohio

Filed April 2, 1970, Ser. No. 25,179
Int. Cl. G02b *3/04, 3/08*
U.S. Cl. 350—189 **11 Claims**



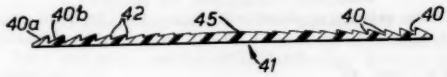
An aspheric lens is made with an aspheric curvature on its frontal surface wherein the curvature is defined in the X-Y coordinate system by a particular relationship in accordance with the index of refraction, heighth, focal distance and radius of back surface parameters.

3,708,222
REAR-VIEW MIRROR WITH REFLECTIVE INCLINED PRISM SURFACES

David Stern, Slough, England, assignor to Combined Optical Industries Limited

Filed May 28, 1971, Ser. No. 147,977
Claims priority, application Great Britain, June 2, 1970, 26,530/70
Int. Cl. G02b *3/08, 5/08*
U.S. Cl. 350—303 **5 Claims**

A rear-view mirror for a vehicle, such as an automobile, which is made of plastics material and is a Fresnel mirror. The mirror comprises a multiplicity of concentric annular prisms formed on one surface of a plastics sheet, there being generally from 50 to 200 prisms per inch. The mirror can be made easily by conventional moulding techniques and can

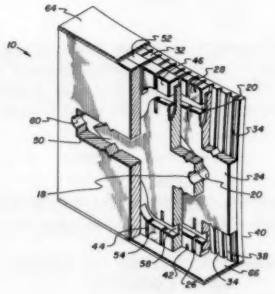


have a wider field of view and better optical properties generally than rear-view mirrors currently used in vehicles. The mirror either has no optical center or has one or more optical centers which are not at the geometrical center of the mirror.

3,708,223
COOLED MIRRORS

Ronald L. Sorensen, Thousand Oaks, and Charlton Dunn, III, Chatsworth, both of Calif., assignors to North American Rockwell Corporation

Filed April 2, 1971, Ser. No. 130,744
Int. Cl. G02b *7/18*
U.S. Cl. 350—310 **14 Claims**



Optical mirrors are provided, particularly for use as laser-cavity mirrors, including a face plate having an optically reflective surface in heat-exchanging relationship with coolant passages in which the flow of coolant in adjacent coolant passages is preferably counter-current in order to cool the optically reflective surface in a thermally balanced manner. Coolant is distributed to and collected from the coolant passages in the face plate by a first manifold plate. The first manifold plate has coolant distribution and collection passages for distributing coolant to and collecting coolant from the coolant passages in the face plate and manifold means for receiving and distributing coolant to each of the coolant distribution passages in the first manifold plate. The coolant collected by the coolant collection passages in the first manifold plate is distributed to coolant collection passages formed in a second manifold plate. Manifold means in the second manifold plate are provided for receiving coolant from each of the coolant collection passages in the second manifold plate and for conducting the coolant exteriorly of the mirror.

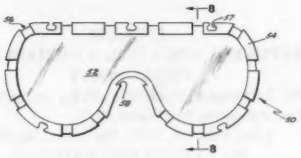
3,708,224
VENTILATED GOGGLES

Frank W. Lindblom, Warwick, R.I., assignor to Textron Inc.

Filed May 24, 1971, Ser. No. 146,303
Int. Cl. G02c *11/08*
U.S. Cl. 351—62 **4 Claims**

A ventilated goggle having a face piece with a front wall, a top wall, a bottom wall, and side walls. The front wall is

defined by a pair of laterally spaced wall sections that are substantially parallel to each other with each having an aligned aperture therein to allow the wearer to see therethrough. The open space between the laterally spaced wall sections form a channel that extends around the inner surface of the front wall and a plurality of spaced locking lugs are formed integrally with the outer walls of said face piece such that they project inwardly into said channel. The goggles have a single lens which is detachably positioned in said channel and the lens



comprises a substantially planar central body shaped like the letter B laying on its side and has a plurality of spacers positioned at intervals around its periphery. The spacers are of a thickness greater than the thickness of the central body with that thickness extending laterally outwardly from both sides of the central body. The peripheral edge of the central body between the spacers is recessed inwardly from the peripheral edge of the spacers to form ventilation paths between the spacers when the lens is mounted in the channel.

3,708,225

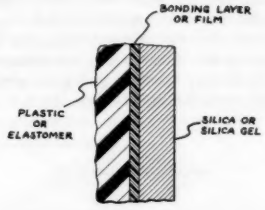
COATED SYNTHETIC PLASTIC LENS

Robert D. Misch, and Donald A. Daus, both of Chicago, Ill., assignors to MBT Corporation, Chicago, Ill.

Division of Ser. No. 8,530, Feb. 4, 1970, Pat. No. 3,637,416, which is a continuation-in-part of Ser. No. 636,258, May 5, 1967, abandoned, which is a continuation-in-part of Ser. Nos. 473,212, July 19, 1965, abandoned, and Ser. No. 524,454, Feb. 2, 1966, abandoned, which is a continuation-in-part of Ser. No. 231,299, Oct. 17, 1962, abandoned. This application June 9, 1971, Ser. No. 151,415

Int. Cl. B44d *1/14*; **G02c** *7/04*

U.S. Cl. 351—160 **4 Claims**



A method of improving the surface characteristics of plastics and elastomers which in its preferred aspects includes the steps of forming a bonding or coupling film of an organic silicon compound on the surface of a plastic or elastomeric material and thereafter contacting the film with a compound or a mixture of compounds, or a solution thereof, capable of forming a deposit or coating of silica or silica gel thereon, and articles produced in accordance with the method.

3,708,226

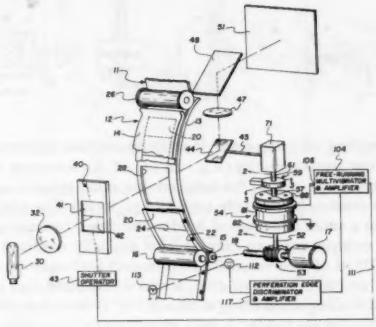
MOTION PICTURE PROJECTOR APPARATUS

Lee T. Askren, Rochester, N.Y., and Charles S. Fitzgerald, Westford, Mass., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed July 6, 1971, Ser. No. 159,901

Int. Cl. G03b *41/10*

U.S. Cl. 352—109 **7 Claims**



Motion picture projection apparatus, for use with filmstrips having aligned images areas and spaced discontinuities such as sprocket perforations or frame lines having fixed spacial relationships to the locations of the image areas on the film, includes a drive mechanism for continuously moving film through an illuminated film gate aperture. The resulting projected images are reflected by a rotatable mirror. An electromagnet clutch is actuable by a free-running multivibrator to interconnect the mirror and the film drive mechanism for rotating the mirror in timed relation to the film movement, thereby maintaining the projected image stationary. A shutter is responsive to the multivibrator output to permit illumination of the film in the gate during mirror movement in one direction and to prevent such illumination of the gate during the return stroke of the mirror. While the free-running time of the multivibrator is a few milliseconds longer than the film frame rate, it is synchronized with the frame rate by a trigger circuit controlled by a film discontinuity sensing device.

3,708,227

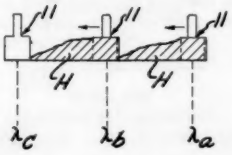
SPECTRAL ANALYSIS INSTRUMENT WITH PROGRAMMED SPECTRAL SLIT WIDTH

Burton Krakow, Brooklyn; Stanley A. Dolin, Rosyln Heights, and Herman A. Kruegle, Little Neck, all of N.Y., assignors to Optical Coating Laboratory, Inc., Santa Rosa, Calif.

Continuation of Ser. No. 779,947, Nov. 29, 1968, abandoned. This application April 19, 1971, Ser. No. 135,499

Int. Cl. G01j *3/42, 3/12*

U.S. Cl. 356—83 **7 Claims**

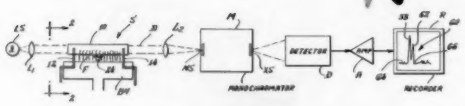


A monochromator having a corner mirror scanning wheel and a fixed baffle adjacent the scanning wheel to vary the effective height of an exit slit. The height profile of the baffle is adapted to selectively vary the radiant energy passed through this exit slit at different wavelengths so as to provide the desired balance among resolution, signal-to-noise ratio and the dynamic range of the background signal over the scanned portion of the spectrum.

3,708,228
SAMPLING TECHNIQUE FOR ATOMIC ABSORPTION SPECTROSCOPY

H. Trevor Delves, St. Albans, England, assignor to The Perkin-Elmer Corporation, Norwalk, Conn.

Filed April 30, 1971, Ser. No. 138,943
Int. Cl. G01j 3/30; G01n 33/16, 1/10
U.S. Cl. 356—87 2 Claims

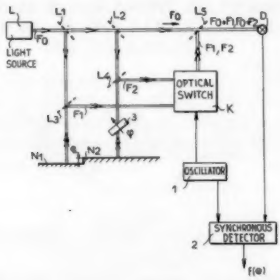


A sampling technique for atomic absorption spectroscopy uses a very small quantity (e.g., 10 μl) of, for example, an organic fluid (e.g., blood) for determining small relative quantities of a reasonably volatile metal (e.g., lead). The sample is placed in a small cup-shaped holder and dried by heating; the organic components are then at least partially oxidized as by adding 20 μl of 100-volume (30 percent) hydrogen peroxide solution and heating until completion of reaction and redrying, both heating steps being at about 140° C by means of a hot plate. The sample holder is then placed under a central aperture in a relatively long absorption tube located in the conventional flame so as to surround the conventional radiation beam of an atomic absorption spectrometer. The relative diameter of the sample holder and of the absorption tube aperture and their relative position are such that a small proportion of the flame enters the aperture so that the sample material is caused to enter the absorption tube but is not flushed out of the open ends thereof for at least a few seconds. Both improved reproducibility and a sensitivity gain factor of about 5 is obtained relative to the use of somewhat larger non-symmetrical (e.g., boat-shaped) sample holders without an absorption tube. Blood lead levels of less than 0.1 μg per ml (i.e., less than 0.001 μg in a 10 μl sample) can readily be determined at an analysis rate of up to 50 samples per hour.

3,708,229
SYSTEM FOR MEASURING OPTICAL PATH LENGTH ACROSS LAYERS OF SMALL THICKNESS

Georges Pircher, Paris, France, assignor to Thomson-CSF

Filed Dec. 29, 1970, Ser. No. 102,434
Claims priority, application France, Jan. 7, 1970, 70386
Int. Cl. G01b 9/02
U.S. Cl. 356—108 9 Claims



The invention relates to systems for the measurement of optical path length utilizing coherent light interferometry.

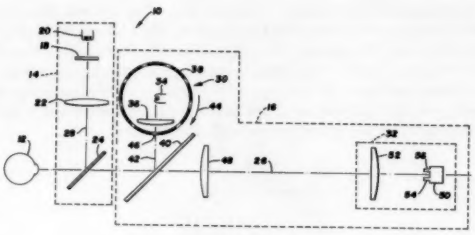
The system according to the invention comprises a differential interferometer wherein the two systems of fringes associated with each of the two faces of the layer whose optical path length is measured, are detected by a single optical-electrical detector to which they are alternately supplied by an optical chopper arrangement. The data produced by said detector, undergoes synchronous detection for controlling a phase-shift optical element inserted in one of the two optical paths reflected from the above mentioned faces.

By way of example such systems can be employed to measure either the thickness or the refractive index of the thin films used in integrated circuitry.

3,708,230
APPARATUS FOR LOCATING A VARIABLE OPTICAL FOCAL POINT

Warren W. Terranova, Rochester, N.Y., assignor to Bausch & Lomb Incorporated, Rochester, N.Y.

Filed Feb. 18, 1971, Ser. No. 116,506
Int. Cl. G01b 9/00; A61b 3/10
U.S. Cl. 356—125 9 Claims



An apparatus employing a servo system locates the focal point of a scanned beam of light where the scanning beam has a conical locus as in an electronic retinoscope. A pair of photodetectors are spaced apart in the direction of scan and are disposed upon a movable trolley. When the beam is swept across the photodetectors, generally sinusoidal signals are generated which have a phase relationship indicative of the direction of scan of the beam across the photodetectors and, therefore, to the position of the trolley relative to the focal point of the beam. The generated signals are amplified and their peaks or zero crossings are detected to trigger two flip-flop circuit output signals which are phase compared to provide a drive signal to a servo system which through mechanical means drives the trolley toward the focal point. When the trolley is disposed at the focal point, the photodetectors are scanned simultaneously thereby giving no phase difference and, accordingly, no drive signal is generated.

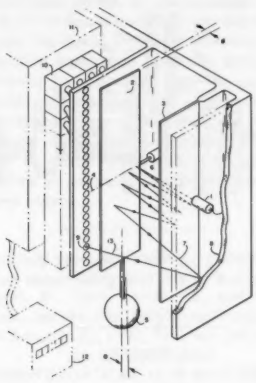
3,708,231
PRECISION ANGLE MEASURING DEVICE

Glenn A. Walters, 12900 Camino Del Valle, Poway, Calif.

Filed Nov. 10, 1969, Ser. No. 870,376
Int. Cl. G01b 11/26
U.S. Cl. 356—152 4 Claims

A device for the precision measuring of angular movements. The device incorporates an optical lever utilizing a predetermined number of reflections to increase the displacement of a

light beam to be read out by discrete sensors. Ambiguities resulting from the amplification of displacement are resolved



by determining displacement at a plurality of points of reflection and by using periodic logic on the sensor outputs.

3,708,232

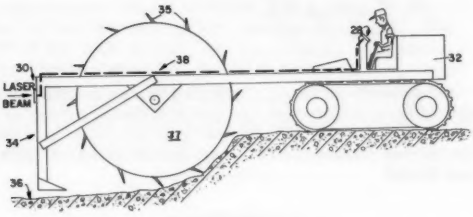
OPTICAL READ-OUT MEANS FOR LOCATING AND POSITIONING OBJECTS WITH RESPECT TO A LASER BEAM REFERENCE

Robert R. Walsh, 2215 Baynard Blvd., Wilmington, Del.

Filed Sept. 16, 1970, Ser. No. 72,703

Int. Cl. G01b 11/26

U.S. Cl. 356—172 **3 Claims**



A passive optical read-out device is provided for locating and positioning objects with respect to a fixed laser beam established in space as a parametric guideline. A plurality of fiber optic bundles extend from an input array to an output or read-out array with the ends of the individual bundles having the same relative position in each of the input and read-out arrays. A laser beam impinged on anyone of the ends of the fiber optic bundles in the input array will cause the corresponding output or read-out end of that same fiber optic bundle to glow brightly in the read-out array. This notifies the observer of the read-out array that a laser beam has impinged upon the input array and also advises the viewer as to the relative position of the beam on the input array.

3,708,233

MULTI-ANGLE PANEL HOLDING DEVICE

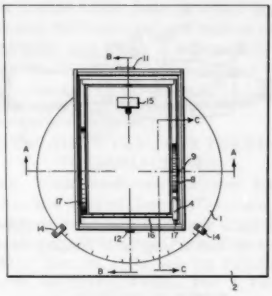
John W. Van Dyk, Wilmington, Del.; Roy H. Vining, Haverford, and David Wittman, Wallingford, both of Pa., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Jan. 12, 1971, Ser. No. 105,827

Int. Cl. G01n 21/16, 21/48

U.S. Cl. 356—244 **8 Claims**

A multi-angle panel holding device for use on colorimeters comprising a base plate, a rotary turret plate which defines an aperture set in the base plate, and a housing member which encloses a panel holder which is capable of free angular rotation in a vertical and/or horizontal plane relative to the direction of incident light from the colorimeter.



3,708,234

BALL HOLDER OF BALL-POINT PEN

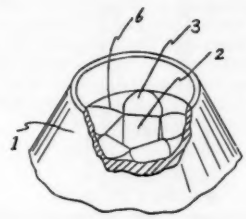
Tomomitsu Fukuda, Tokyo, Japan, assignor to Pentel Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 25, 1971, Ser. No. 118,929

Claims priority, application Japan, March 10, 1970, 45/23060; Sept. 30, 1970, 45/97123; Sept. 30, 1970, 45/97124

Int. Cl. B43k 7/10

U.S. Cl. 401—216 **9 Claims**



A ball holder for a ball point pen is disclosed together with a die for making it, having a ball holder body with an outer circumferential tip and with a hollow ink reservoir, a ball socket integrally formed on the outer tip, a writing ball mounted rotationally within the socket having a crimped rim for retaining said ball mounted within it, its upper portion protruding therethrough, a ball seat in the socket underneath the ball, having a concave polyhedral surface with ball contacts with intermediate orifices; the ball mounted within the socket supported by the contacts; ink collecting, ink holding and ink supplying concavities between the ball and the ball seat; and a pentagonally shaped ink-feed port between the ball and the reservoir, ink supplyingly, free flowingly and contiguously connected with said ball seat.

3,708,235

MARKING INSTRUMENT

Frank Nathan Kolomeir, 6622 Parkview Road, Montreal, Quebec, Canada

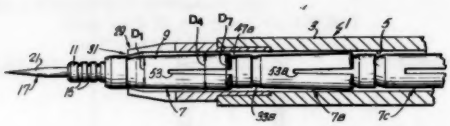
Filed Nov. 30, 1970, Ser. No. 93,729

Int. Cl. B43k 21/16

U.S. Cl. 401—57 **8 Claims**

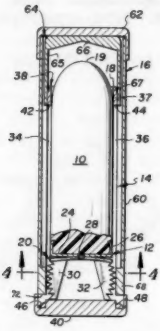
A marking instrument having a casing with a plurality of marking units within the casing. Means are provided for positioning and maintaining the leading marking unit in the casing in a position where it partially extends from the casing permitting normal use of the unit. The leading unit, when used up,

can be removed from the casing and replaced with a fresh marking unit. Improved means are provided for detachably



connecting the units together so that they move in unison toward one end of the casing as a leading marking unit is withdrawn.

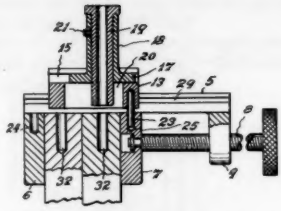
3,708,236
COSMETIC STICK HOLDER
James Greenwood, 7 Woodshore East, Cliffwood Beach, N.J.
Filed May 6, 1971, Ser. No. 140,791
Int. Cl. A45d *39/04*
U.S. Cl. 401—60 **5 Claims**



A lipstick holder is provided which comprises means for positioning the stick of lipstick at a predetermined height above the receptacle for the lipstick whenever the cover is fully removed. The disclosed positioning means includes a support assembly which supports the stick of lipstick at one end, a pair of spring arms attached to the support assembly, slots in the lipstick receptacle through which the spring arms protrude into contact with the cover when the cover is disposed over the lipstick receptacle, and a positioning member disposed in the cover and positioned to be engaged by the top of the stick of lipstick when it has reached its desired position relative to the receptacle. The engagement of the top of the stick of lipstick with the positioning member results in release of the spring arms from the cover.

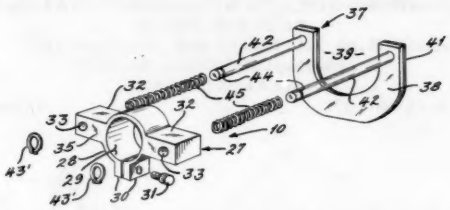
3,708,237
DOWELING JIG
Stanley L. Kruse, R.F.D. No. 1, Box 248, Chaplin, Conn.
Filed July 26, 1971, Ser. No. 165,486
Int. Cl. B23b *49/00*
U.S. Cl. 408—108 **6 Claims**

A Doweling Jig including a work piece clamping device having a pair of work engaging clamping jaws for clamping work pieces to be doweled together, and a drill guide mounted upon said clamping device for locating matched dowel holes to be drilled in said work pieces. The said drill guide being reversible upon said clamping device to locate said holes at identical predetermined distances measured from the opposite sides of said work pieces which are in contact with said jaws, without



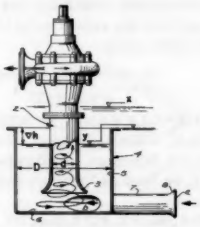
removing the doweling jig from the work pieces, by simply reversing the position of the drill guide upon said clamping device.

3,708,238
ALIGNMENT JIG FOR ELECTRIC SCREW DRIVER OR THE LIKE
Richard W. Kissane, St. Louis County, Mo., assignor to Speed Fastener Inc., St. Louis, Mo.
Filed Dec. 3, 1970, Ser. No. 94,921
Int. Cl. B23b *45/14*
U.S. Cl. 408—112 **2 Claims**



An alignment jib having a mounting portion secured to an electrically powered rotary tool and an abutment portion carried thereby for relative rectilinear axial movement to maintain the tool perpendicular to a work surface during the operation thereof.

3,708,239
MEANS AND METHOD OF REGULATING FLOW FROM CENTRIFUGAL PUMPS
Martin Stahle, P.O. Box 12, Neunkirch, Switzerland
Filed Sept. 23, 1971, Ser. No. 183,138
Claims priority, application Switzerland, Oct. 16, 1970, 15413/70
Int. Cl. F01d *17/00*
U.S. Cl. 415—1 **7 Claims**



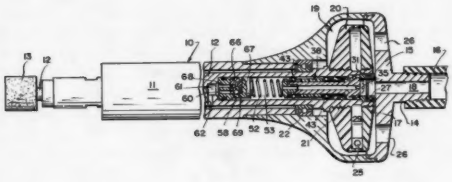
The flow regulating means includes a regulator shell having a tangentially placed inlet tube at its lower closed end, the upper end being open. The shell is submerged at a level below

the normal level of the liquid to be pumped. The shell receives a concentrically disposed suction pipe connected with the intake of a centrifugal pump. In the exercise of the method, when the level of the liquid body is above the shell a predetermined distance, the liquid is drawn downwardly in the shell around the suction pipe, then upwardly through the suction pipe with minimal turbulance so that the pump operates at maximum capacity. When the liquid approaches the top of the shell, an increased volume of liquid enters the tangent inlet tube to produce a vortex which increases in force as the liquid level subsides to cause proportionately decreasing pump capacity, tending to produce an equilibrium between liquid input and pump output.

3,708,240
SPEED GOVERNOR

James V. Theis, Jr., Park Forest, Ill., and Lynn M. Davis, Taylor, Mich., assignors to Hollymatic Corporation

Filed July 30, 1971, Ser. No. 167,644
Int. Cl. F01b *25/06*
U.S. Cl. 415—36 **14 Claims**

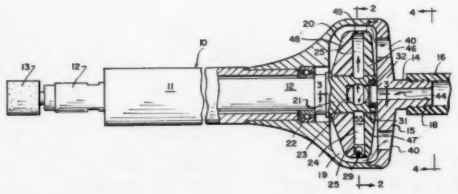


A speed governor for a fluid driven rotor having an inlet means for pressurized fluid to the rotor including a valve seat, a valve movable toward and away from the seat to regulate flow of fluid therethrough into the rotor, a chamber on the side of the valve opposite the seat, a supply of pressurized valve control fluid to the chamber so that increasing control fluid pressure in the chamber urges the valve toward the valve seat, and a centrifugally controlled device for increasing the pressure of valve control fluid in the chamber as a function of increasing rotational speed.

3,708,241
FLUID ENGINE

James V. Theis, Jr., Park Forest; John B. McCord, Evanston, and Harry H. Holly, Olympia Fields, all of Ill., assignors to Hollymatic Corporation

Continuation-in-part of Ser. No. 93,288, Nov. 27, 1970. This application Aug. 9, 1971, Ser. No. 170,234
Int. Cl. F01d *15/06;* **F04d** *1/00*
U.S. Cl. 415—80 **14 Claims**

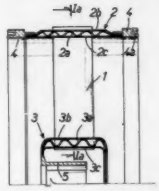


A pressurized fluid engine operable at high efficiency and in which pressure fluid flows therethrough with low pressure and fluid losses, having a pressure fluid passage to a rotor which has a hollow confined interior bounded on substantially its entire inner periphery by inclined surfaces facing the axis of rotation, and an annular self-centering seal whose central passage is in communication with the rotor. A pressurized fluid engine having a rotor subjected to internal fluid pressure with a conduit portion to the rotor in which is positioned an annular seal that is self-centering and held in position by the pressure of the fluid and which is substantially free of rotational friction wear.

3,708,242
SUPPORTING STRUCTURE FOR THE BLADES OF TURBOMACHINES

Henri Bruneau, L'Hay-les-Roses; Gerhard Langner, Dammarie-les-Lys, and Marcel Joseph Tournere, Paris, all of France, assignors to Societe Nationale D'Etude et de Construction de Moteurs D'Aviation, Paris, France

Filed Nov. 30, 1970, Ser. No. 93,655
Claims priority, application France, Dec. 1, 1969, 6941393
Int. Cl. F04d *29/40, 19/02*
U.S. Cl. 415—217 **16 Claims**

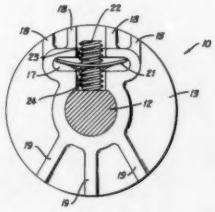


In and for a fluid handling turbomachine having a relatively rotatable bladed stator and rotor, a blade supporting structure comprising at least one corrugated annular element coaxial with the axis of the machine and perforated with openings in each of which a blade is fitted or embedded at one of its ends in order that the blade body is disposed obliquely in relation to the general direction of the corrugations in said corrugated element.

3,708,243
PLASTIC FAN HUB

John A. Wooden, Oaklandon, Ind., assignor to Brookside Corporation, McCordsville, Inc.

Filed Feb. 24, 1971, Ser. No. 118,379
Int. Cl. F04d *29/20*
U.S. Cl. 416—134 **5 Claims**



Disclosed is a hub formed of plastic which carries a fan spider or a blower wheel and has a central bore to accommodate a motor shaft. A cavity is formed in the hub and accommodates a resilient leaf which is threaded on a shaft-engaging set screw extending radially into the central bore. Tightening the set screw on the shaft distorts the resilient member and the internal restoring force thereby exerted by the resilient member holds the hub locked on the shaft despite the normal cold-flow or creep of the hub material.

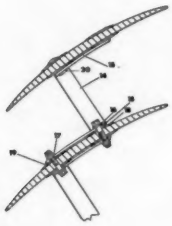
ERRATUM

For Class 415—51 see:
Patent No. 3,708,247

3,708,244
BLADED ROTOR FOR A GAS TURBINE ENGINE

Lindsay Grahame Dawson, Castle Donington; James Alexander Petrie, Littleover, and Kenneth Edward George Bracey, Findern, all of England, assignors to Rolls-Royce Limited, Derby, England

Filed Apr. 9, 1971, Ser. No. 132,675
Claims priority, application Great Britain, April 13, 1970, 17,546/70
Int. Cl. F01d *5/10, 5/24*
U.S. Cl. 416—196 **3 Claims**

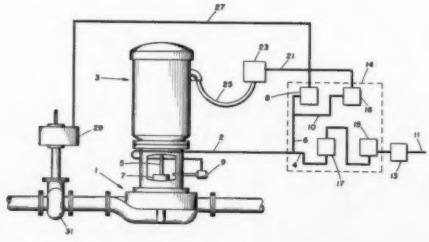


A bladed rotor for a gas turbine engine comprising a row of blades in which each blade is tied to the next adjacent blade by a Z-shaped metal tie having a center section which is inwardly curved such that centrifugal forces acting on itself are evidenced as compressive stresses within the tie and end limbs or lugs extending from the center section in opposite directions generally chordally of the blades and each being attached to the blades by bolts spaced apart transversely of the blade, the bolts extending through the blade to also attach a similar limb or lug to the opposite blade face.

3,708,245
HOT OIL LEAK DETECTION

Samuel F. King, Oklahoma City, Okla., assignor to Mobil Oil Corporation

Filed July 31, 1970, Ser. No. 59,958
Int. Cl. F04b *49/10*
U.S. Cl. 417—13 **13 Claims**

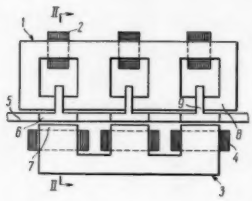


This specification discloses a method and apparatus for pumping hot fluids and for detecting leaks of the hot fluids. An application of this invention is in hot oil pumps of gasoline absorption plants. Detection of leaks of hot oil due to pump seal failure is sensed and a signal is produced. This signal may be used for such things as shutting down the pump and giving an alarm.

3,708,246
ELECTROMAGNETI PUMPS FOR LIQUID METALS

Ruslan Vasilievich Radchenko, and Stanislav Alexandrovich Mokrushin, both of Sverdlovsk, U.S.S.R., assignors to Otdel Fiziko-Tekhnicheskilch Problem Energetiki Uralskogo Filiala An SSR Filiala Am SSSR, Sverdlovsk, U.S.S.R.

Filed July 12, 1971, Ser. No. 161,487
Int. Cl. H02k *45/00*
U.S. Cl. 417—50 **2 Claims**

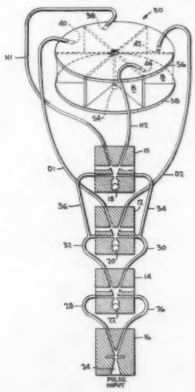


A gapless and an air-gap magnetic circuit are separated by a clearance which accommodates a straight conduit conveying a liquid metal. The air-gap magnetic circuit is the multipole core of an A.C. electromagnet and serves to establish a magnetic field in the liquid metal. The gapless magnetic circuit is a polyphase transformer with single-turn secondary windings formed by the liquid metal and a conductor enveloping the transformer core. The gapless magnetic circuit induces an electric current in the liquid metal. The magnetic field and the electric current interact to produce an electromagnetic head.

3,708,247
FLUID STEPPING MOTOR

Raymond W. Warren, McLean, Va., assignor to The United States of America as represented by the Secretary of the Army

Filed Feb. 26, 1971, Ser. No. 119,241
Int. Cl. F01b *25/00*
U.S. Cl. 415—51 **7 Claims**



A fluid stepping motor for providing a rotary mechanical output for a fluidic digital logic system. A rotor having a plurality of blades radially disposed about a pivotable shaft is driven in a stepping fashion by fluid impulses issuing from the output channels of a bistable fluid amplifier. A pair of fluid streams issuing from the output channels of a second bistable fluid amplifier each act in conjunction with one of the aforesaid drive channels to bring the rotor to a position of stable equilibrium prior to the application of the next step command. The equilibrium position established for the rotor by

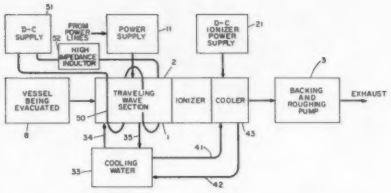
the action of one drive channel and one hold channel will bring another blade of the rotor into the proper position for receiving the next command from the other drive channel when the corresponding amplifiers are switched. Each time a pulse is applied to the input of the system, the rotor will advance one step and provide an output indication at the central shaft. The input to the system may be provided by any conventional pulsed device such as a fluid pulse converter.

3,708,248

MAGNETIC TRAVELING-WAVE VACUUM PUMP

Charles W. Haldeman, III, Lexington, Mass., assignor to Massachusetts Institute of Technology, Cambridge, Mass.

Filed April 26, 1971, Ser. No. 137,173
Int. Cl. F04f *11/00*
U.S. Cl. 417—48 **15 Claims**



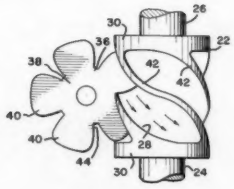
A vacuum pump wherein a a traveling magnetic wave coupled to ionized gas particles propels the particles from the inlet of the pump to the outlet thereof. Gas within the coupling region of the traveling wave is kept ionized by a high temperature electron emitting structure which directs electrons through said region. A roughing and backing pump is provided to bring the pressure in the system down to about 20 mm of mercury at which time the traveling-wave pump takes over.

3,708,249

PUMP HAVING ROTOR WITH TRANSVERSE FEED AND DISCHARGE

Oscar Luthi, Nashua, N.H., assignor to Improved Machinery Inc., Nashua, N.H.

Filed Sept. 2, 1970, Ser. No. 68,866
Int. Cl. F04b *23/14*
U.S. Cl. 417—203 **35 Claims**



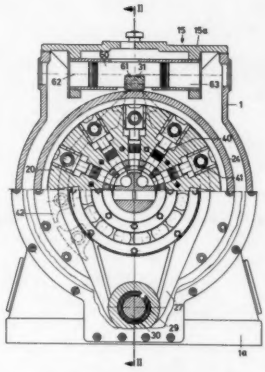
A pump comprising a rotor rotatably driven about a longitudinal axis and including peripheral rotor pockets which each longitudinally extend generally spirally around only a portion of the periphery of the rotor and have their ends inwardly of the ends of the rotor. A disc, rotatably driven in timed relationship with the driven rotation of the rotor about an axis transverse to said rotor axis, is provided with peripheral lobes sealingly in the rotor pockets for discharging material from the pockets in a direction transverse to said rotor axis as the material is rotated in the rotor pockets towards the disc. Material to be pumped is supplied to the rotor pockets on one side of the disc in a direction transverse to the rotor axis, whereupon the driven rotation of the rotor moves the material to the other side of the disc where it is discharged from the rotor pockets by the disc.

3,708,250

REGULATED RADIAL PISTON PUMP

Fritz Thumm, Urach, Germany, assignor to Wepuko Werkzeugpumpen-und Kompressorenfabrik Von Neudeck and Co., Metzingen, Germany

Filed Oct. 13, 1970, Ser. No. 80,382
Int. Cl. F04b *1/06*
U.S. Cl. 417—221 **2 Claims**



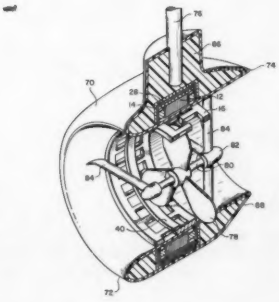
A radial piston pump has a rotor with working chambers and pistons or vanes in the same whose outer ends have shoes sliding on a circular guide ring mounted eccentrically to the rotor axis on a tiltable support whose angular position, and thereby the eccentricity of the guide ring, is varied by a setting device including a hydraulic motor angularly displacing the tiltable support under the control of a valve which is operated by a control circuit.

3,708,251

GEARLESS DRIVE METHOD AND MEANS

John J. Pierro, Inglewood, Calif., assignor to North American Rockwell Corporation

Division of Ser. No. 741,676, July 1, 1968, Pat. No. 3,548,965.
This application May 11, 1970, Ser. No. 29,326
Int. Cl. F04b *17/00, 35/04*; B63h *21/26*; H02k *1/22*
U.S. Cl. 417—356 **2 Claims**



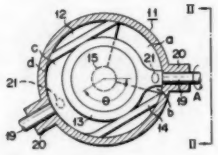
A synchronous motor has a circular rotating pair of cylindrical pole pieces of claw tooth form connected with propulsion means such as a propeller, and is driven by interaction of magnetic fields produced by segmented modular stator and field windings peripherally situated at spaced locations about the pole pieces energized by polyphase alternating current at a frequency determined by the speed of rotation of the pole pieces relative to the stationary stator and field coils. An additional DC signal is applied to the field windings. For higher power requirements, the number of segmented stator and field coil units can be increased.

3,708,252

ROTARY MECHANISM

Hideki Nishioka, 1745 Isshiki, Hayama-cho, Miura-gun, Kanagawa-ken, Japan

Filed July 1, 1971, Ser. No. 158,966
Claims priority, application Japan, July 1, 1970, 45/57117
Int. Cl. F01c *1/08*; F03c *3/00*; F04c *1/14*
U.S. Cl. 418—195 **1 Claim**



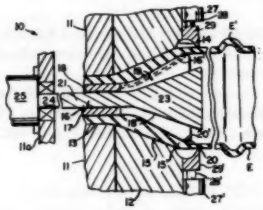
A rotary mechanism adapted for use with a rotary compressor or rotary engine which comprises a housing constituting a spherical chamber and a pair of rotary members including a pair of conical members coupled together by coupling spherical member so as to be rotatably received in said spherical chamber.

3,708,253

EXTRUSION APPARATUS

Jerome H. Lemelson, 85 Rector Street, Metuchen, N.J.

Continuation-in-part of Ser. No. 736,081, June 11, 1968, Pat. No. 3,526,020, which is a division of Ser. No. 142,405, Oct. 2, 1961, Pat. No. 3,422,648. This application Sept. 1, 1970, Ser. No. 68,724
Int. Cl. B29j *5/06*
U.S. Cl. 425—155 **10 Claims**



An apparatus and method are provided for forming tubular extrusions which vary in shape along their length. In one form, an extrusion is belled outwardly along selected portions of its length to provide, when severed along the belled portions, means for joining sections of the extrusion together as in a piping system, without the need for separately formed fittings. The variation in diameter of the extrusion may be effected in a number of manners employing tooling associated either with the mandrel over which the tubing is formed to shape or mounted against or adjacent to the external face of the extrusion die. Modified forms of the apparatus may also be provided to machine or outwardly deform portions of preformed tubing.

3,708,254

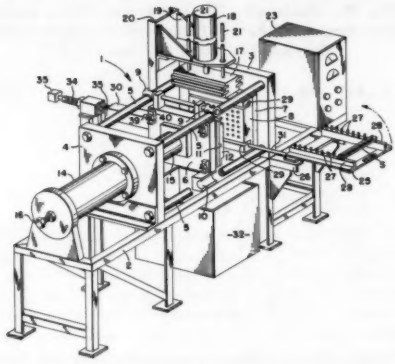
VERTICAL MOLD PRESS FOR MOLDING ARTICLES OF RUBBER-LIKE MATERIAL

Harry J. McCullough; John M. Shahid, both of Lexington, and Aland Boyd, Clay City, all of Ky., assignors to Parker Hannifin Corporation, Cleveland, Ohio

Filed May 10, 1971, Ser. No. 141,620
Int. Cl. B29f *5/00*
U.S. Cl. 425—235 **14 Claims**

A press for molding articles such as O-rings of rubber-like material characterized in that a pair of vertically disposed mold plates secured to heating platens are relatively horizontally movable into and out of mating engagement, the press, when open, being unloaded by gravity upon movement of a stripper downwardly between said mold plates, and being loaded by lateral movement of a vertical loading device to position uncured stock between said mold plates so that when the press is closed the stock is squeezed into the cavities in the mating faces of said mold plates.

The press herein is further characterized in that when said mold plates are in mating engagement to cure the articles



therein by heat and pressure the loading device may be withdrawn and moved to a horizontal position for loading of uncured stock thereon, the stock preferably being in the form of slit strips stretched over pins on the loading device.

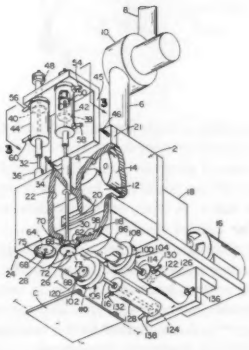
Yet another characterizing feature of this invention is that novel lock means are provided to releasably lock one mold plate (or both) to the respective heating platen, said lock means including wedge blocks which are adapted to be struck by hammer blows to lock or unlock the mold plate to or from the respective heating platen.

3,708,255

DOUGHNUT AND SHELL MAKING

Eugene P. Schertz, Wakefield, and George A. Triosi, Andover, both of Mass., assignors to Dunkin' Donuts Incorporated, Quincy, Mass.

Filed July 28, 1970, Ser. No. 58,854
Int. Cl. A21c *3/04*, *11/16*
U.S. Cl. 425—287 **14 Claims**



In a continuous doughnut and shell-forming apparatus, including a dough developer, a ring-forming and shell-forming

depositor, and a pump for pumping dough through the developer and depositor, the depositor is provided with a first chamber having a pair of ring-forming openings, the first chamber receiving dough from the developer and a second chamber receiving dough from the first chamber, the first chamber having dies of varied cross-section to cut-off uniform rings from non-uniform flowing dough and the second chamber having cut-off valves reciprocable past the openings to cut off shells, the valves also having an extreme position closing the openings from the first chamber, the ring-forming and shell-forming portions of the machine being operable separately or simultaneously.

3,708,256

EXTRUSION PRESS

Eugen Kopp, Stuttgart, Germany, assignor to Werner & Pfleiderer, Stuttgart-Feuerbach, Germany

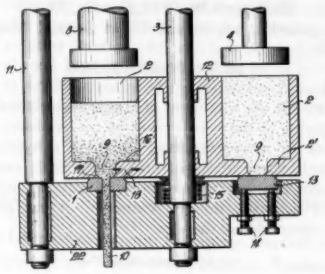
Filed Aug. 6, 1970, Ser. No. 61,711

Claims priority, application Germany, Aug. 16, 1969, P 19 41 872.5

Int. Cl. B29f *3/014*

U.S. Cl. 425—376 **17 Claims**

An upright extrusion press for extruding an extrudable mass such as a plasticized and/or pulverized mass includes a pressing table mounting an extrusion die and at least two pressure or extrusion pots jointly swingable about a common vertical axis for alternately moving the pots into a filling position



and an extrusion position, respectively. Each of the pots comprises an extrusion bottom including an opening which is so disposed that it is in registry with the extrusion opening in the die when the pot is in its extrusion position.

CHEMICAL

3,708,257

PROCESS FOR THE DYEING OF TEXTILE MATERIAL MADE FROM MIXTURES OF POLYESTER AND CELLULOSIC FIBERS

Rudolf Lowenfeld, Buchschlag, and Uwe Kosubek, Offenbach, Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Oct. 27, 1970, Ser. No. 84,544

Claims priority, application Germany, Oct. 29, 1969, P 19 54 294.0

Int. Cl. D06p *3/82*

U.S. Cl. 8—21 C **6 Claims**

Process for the dyeing of textile material consisting of mixtures of polyester and cellulosic fibers, wherein said textile material is impregnated with an alkaline solution containing a substantive coupling component, as well as a wetting or dispersing agent, dried, subsequently treated with an acid aqueous solution containing a diazotized aromatic amine and a compound having an acidic reaction, dried, impregnated with at least one disperse dyestuff and then subjected to a heat-treatment.

3,708,258

DYEING AND PRINTING HYDROPHOBIC FIBER IN AQUEOUS SULFONYL CARBAMIC ACID-TYPE DYESTUFF SOLUTIONS

Hans-Ulrich von der Eltz, Frankfurt am Main, Dieter Gunther, Kelkheim, Taunus, Karl-Heinz Krell, Kronberg, and Karl Matterstock, Hofheim, Taunus, Germany, and Hansjorg Vollmann, Coventry, R.I., assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

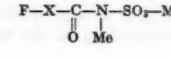
No Drawing. Filed June 28, 1971, Ser. No. 157,666

Claims priority, application Germany, June 30, 1970, P 20 32 238.7

Int. Cl. D06p *3/82*

U.S. Cl. 8—21 **7 Claims**

Process for the dyeing and printing of hydrophobic fiber materials by treating the goods in the presence of an acid donor at temperatures above 50° C. with aqueous solutions of dyestuffs having the general formula



wherein F represents the radical of an organic dyestuff water-insoluble per se, X represents an —O—, a —S— or —NR— bridge member (R=a hydrogen atom or an alkyl, aryl, acyl or alkyl or arylsulfonyl group) and Me is an alkali metal or ammonium ion.

3,708,259

METHOD FOR DYEING POLYAMIDE FIBERS WITH HALOTRIAZINYLMONOAZO DYESTUFFS

Nagib A. Doss, Albany, N.Y., assignor to GAF Corporation, New York, N.Y.

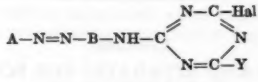
No Drawing. Original application Dec. 18, 1967, Ser. No. 691,134, now Patent No. 3,565,882. Divided and this application Feb. 14, 1971, Ser. No. 112,822

Int. Cl. D06p *3/10*

U.S. Cl. 8—41 R **3 Claims**

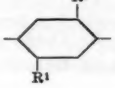
Method of dyeing nitrogenous fibers with a water soluble monoazo dyestuff containing a single acidic water solubilizing group and having the formula

(1)



wherein A is a phenyl or naphthyl moiety containing a single acidic water-solubilizing group; B is

(1)



or

(2)

R^1 is H, methyl, methoxy or acylamido; R^2 is H, methyl or methoxy; Hal is Cl or Br; Y is NHR^3, SR^4 or OR^5; and R^3, R^4 and R^5 are individually H, alkyl or phenyl.

3,708,260

TEXTILE TREATMENT PROCESS

Clifford Marshall, Davenham, and Stanislaw Kalinowski, Manchester, both of England, assignors to Imperial Chemical Industries, Limited, London, England

Filed April 30, 1970, Ser. No. 33,485

Claims priority, application Great Britain, May 9, 1969, 23,782/69

Int. Cl. D06l *3/02, 3/06*

U.S. Cl. 8—111 11 Claims

A process for the treatment of textile materials which comprises applying to the textile material an emulsion or suspension of one or more bleaching agents in a hydrocarbon or halogenated hydrocarbon solvent, substantially removing the solvent from the textile material, and subsequently washing the textile material, and an emulsion or suspension of a bleaching agent for use therein.

3,708,261

COMPOUNDS HAVING METHYLOL GROUPS AND UNSATURATED GROUPS ARE USED WITH SELECTED CATALYSTS TO PRODUCE A DURABLE PRESS PRODUCT

Andrew A. Kasper, Watertown, and Leonard Lifland, Wellesley, Mass., assignors to The Kendall Company, Walpole, Mass.

No Drawing. Filed Mar. 21, 1969, Ser. No. 809,371

Int. Cl. D06m *15/56, 15/36, 13/40*

U.S. Cl. 8—116.3 19 Claims

A process and the product thereof wherein easy care or permanent press characteristics are imparted to substrates including at least ten percent polymeric cellulosic fibers by the application thereto of one or more suitable unsaturated compounds either alone or together with other aminoplast resins and in the presence of one or more suitable catalysts comprising a metal salt in which the metal ion is aluminum, zinc, zirconyl and titanyl and the anion is of an acid selected from hydrochloric acid, nitric acid, sulphuric acid, phosphoric acids and organic carboxylic and sulfonic acids having a pK up to 6, said metal salt being soluble in water to the extent of at least 0.1 percent by weight, the unsaturated compound, having at least one group capable of interacting with the hydroxy groups of the polymeric cellulosic fibers, curing and interacting in the presence of the said suitable catalyst upon application of suitable thermal energy.

3,708,262

METHOD AND APPARATUS FOR SCOURING RAW LOOSE WOOL

Masao Watanabe, Nishinomiya, and Hidekazu Mizoguchi and Makio Hoshikawa, Kyoto, Japan, assignors to Kanegafuchi Boseki Kabushiki Kaisha, Tokyo, Japan

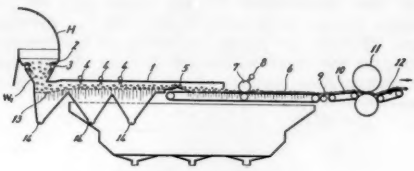
Filed Oct. 15, 1970, Ser. No. 81,043

Claims priority, application Japan, Oct. 20, 1969, 44/83,693

Int. Cl. D01c *3/00*

U.S. Cl. 8—139 8 Claims

A method for washing and scouring loose wool which has been subjected to a preliminary washing carried out in a floating down type washing bath to separate at least a part of soil and dirt from the loose wool, which method comprises conveying loose wool in a layer placed between two net conveyors mounted in parallel and movable along a given path through a liquor scouring bath, said path being preferably at a level of about 40–60 mm. beneath the liquid surface, supplying said bath with scouring liquid under substantially no pressure from a scouring liquid feeding device which is positioned above said path and drawing the scouring liquid by an uptake suction means positioned below the said path, whereby



steady and gentle diffusion flow passes downwardly entirely through the fiber layer. An apparatus suitable for performing the above mentioned method has been also proposed.

3,708,263

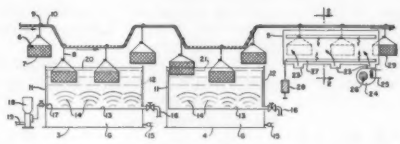
METHOD FOR CONTINUOUS STERILIZATION AT LOW TEMPERATURE

Raymond M. G. Boucher, New York, N.Y., assignor to Wave Energy Systems Inc., New York, N.Y.

Filed Jan. 15, 1971, Ser. No. 106,739

Int. Cl. A61l *13/00, 1/00, 3/00*

U.S. Cl. 21—54 A 19 Claims



An automatic method and apparatus to continuously surface sterilize at temperatures below 75° C any objects, parts or components made of metal or heat sensitive materials. Said method consists of treating materials first in a synergistically active chemical solution in an ultrasonic tank, then of rinsing in a second ultrasonic tank. The final step consists of drying the processed material in a sterile atmosphere. The three different processing steps take place in a matter of minutes inside a laminar flow positive pressure clean or white room. The apparatus continuously delivers sterile parts or instruments ready for packaging and sealing. Sterilized parts or instruments are not physically or chemically affected by the process and do not contain dissolved corrosive or toxic compounds.

3,708,264

AUTOMATIC SAMPLE ANALYZER

Christian Francis Jottier, Herfelingen, Belgium, assignor to l'Automation Chimique et Nucleaire, Brussels, Belgium, and Commissariat a l'Energie Atomique, Paris, France

Filed Aug. 11, 1971, Ser. No. 170,871

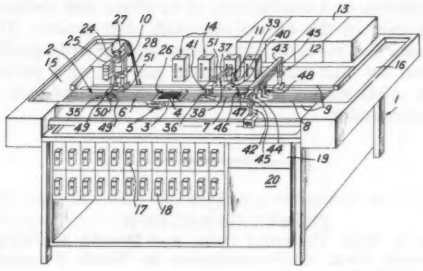
Claims priority, application Belgium, Aug. 14, 1970, 92,877

Int. Cl. G01n *1/14*

U.S. Cl. 23—230 R 16 Claims

The analyzer comprises at least $n+1$ parallel paths to be selected and corresponding to the maximum number

of analyses to be performed on a sample for which one path is reserved, a series of test-tubes including a sample test-tube and a number $\leqslant n$ of analytical test-tubes being displaced simultaneously along said paths and placed vertically on a support in transverse rows. Means controlled



by a pre-established program are provided at the point of injection of reagents into the analytical test-tubes for detecting the presence of one test-tube on each path in order to permit injection of reagents into the test-tubes which are present and to prevent such injections opposite to paths on which no analytical test-tubes are present.

3,708,265

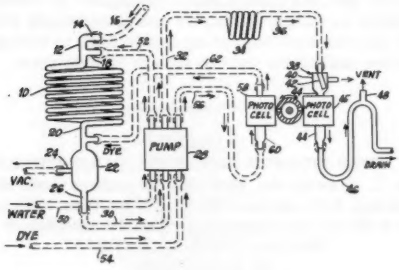
COLORIMETER FOR DETERMINING THE CONCENTRATION OF A POLLUTANT GAS IN AN AIR SAMPLE

Norman A. Lyshkow, Chicago, Ill., assignor to Pollution Monitors, Inc., Chicago, Ill.

Original application June 15, 1970, Ser. No. 46,308. Divided and this application Apr. 8, 1971, Ser. No. 132,614

Int. Cl. C01n *21/26*

U.S. Cl. 23—254 **20 Claims**



This invention is addressed to a new and improved colorimeter for determining the concentration of gaseous pollutants in air and to improved scrubber and photocell assemblies for use with such colorimeters, wherein the scrubber includes a helical coil into which an air sample is drawn and admixed with a liquid absorbent whereby the liquid flows gravitationally through the coil in the form of wave fronts to provide complete contact between the air sample and the liquid absorbent with minimum agitation, and the photocell assembly includes a pair of spaced photoresistors and a light source spaced therebetween, with the light source having a lamp housing enclosing the light source and defining a pair of spaced openings whereby the light source projects optical spots to the photoresistors to illuminate the photoresistors with light, the relative intensity of which is dependent upon the color developed in solutions passed in front of the photoresistors as an indication of the pollutant gas concentration in the air sample.

3,708,266

APPARATUS FOR CLEANING SULPHUR DIOXIDE-CONTAINING FLUE GASES

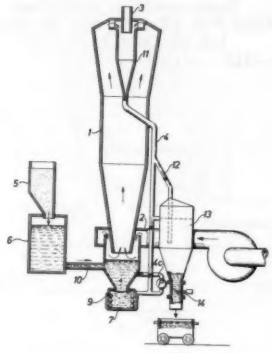
Karl Axel Goran Gustavsson, Enkoping, Sweden, assignor to Aktiebolaget Bahco Ventilation, Enkoping, Sweden

Filed July 24, 1970, Ser. No. 57,983

Claims priority, application Sweden, Aug. 29, 1969, 12030/69

Intl Cl. B01j *1/22*

U.S. Cl. 23—283 **6 Claims**



In an apparatus for cleansing flue gases containing sulphur dioxide, an absorbent material slurry is circulated through or adjacent the bottom of an upstanding absorption column through which the flue gas passes. A grinding mill is provided in the circulation system for the slurry so as to remove the sulphite and/or sulphate compounds which coat and inactivate the particles of absorbent material and to expose additional active surface.

3,708,267

METHOD OF PROCESSING NUCLEAR FUELS

Alessandro Avogadro, Varese, Italy, and Joseph Wurm, Mol, Belgium, assignors to European Atomic Energy Community (Euratom), Kirchberg, Luxembourg

Filed Sept. 8, 1969, Ser. No. 856,171

Claims priority, application Netherlands, Oct. 25, 1968, 6815301

Int. Cl. G21c *19/48*

U.S. Cl. 423—5 **1 Claim**

In the processing of irradiated nuclear fuels containing uranium and plutonium, the fuel is first converted to a plutonium-containing alkali-metal uranate, and the uranate is suspended in a molten salt or salt mixture and treated with gaseous hydrogen chloride and oxygen, whereupon the uranium dissolved in the melt is separated from the undissolved plutonium compounds.

3,708,268

ISOTOPIC THERMAL POWER SOURCE

Kenneth E. Mayo, Nashua, N.H., and Joseph J. Fitzgerald, Winchester, Mass., assignors to Sanders Nuclear Corporation, Nashua, N.H.

Continuation of Ser. No. 624,587, March 20, 1967, abandoned. This application Sept. 5, 1968, Ser. No. 781,646

Int. Cl. B22f *1/00*

U.S. Cl. 29—182.5 **10 Claims**

An isotopic thermal power source is formed having good heat conductivity and desired ductility by utilizing a mixture of molecules of a metal refractory or ceramic compound and metal with the metal of said refractory compound and the metal atoms being capable of being activated to radioactive forms or being in radioactivated forms. Preferably the metal refractory is thulium oxide and the metal is thulium. Thulium 169 is capable of being activated to thulium 170 and/or thulium 171 to produce heat sources comprising the mixture having power ratings of at least 0.5 thermal watts per cubic centimeter.

3,708,269

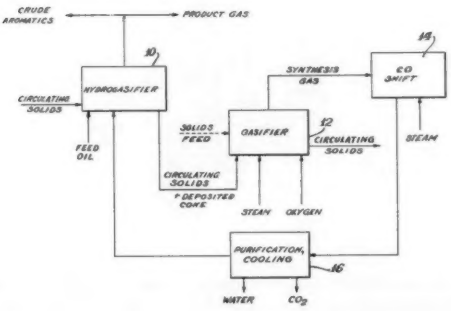
FOSSIL FUEL HYDROGASIFICATION PROCESS FOR PRODUCTION OF SYNTHETIC PIPELINE GAS

Henry R. Linden, La Grange Park, Ill., assignor to Institute of Gas Technology

Filed Nov. 12, 1970, Ser. No. 88,651

Int. Cl. C01b *2/14, 2/22*

U.S. Cl. 48—215 **26 Claims**



A process for producing a high methane content, synthetic pipeline gas from fluid fossil fuels including low grade petroleum oils alone and from a combination of fluid fossil fuels and solid fossil fuels, including bituminous coal, char, lignite, and oil shale. The process includes introducing the fluid fossil fuel and hydrogen rich gas to a hydrogasifier chamber which is maintained at about 500–2000 p.s.i.g. and about 1100–1600° F. The fluid fossil fuel is converted to a high methane content gas, normally liquid aromatic hydrocarbons, and a carbonaceous solid residue in the hydrogasifier. Pulverized solids are passed through the hydrogasifier and into a gasifier chamber, maintained at a pressure of about 500–2000 p.s.i.g. and at a temperature of about 1500–2100° F., to remove the carbonaceous residue or coke formed in the hydrogasifier by reaction of the fluid fossil fuel. A gaseous mixture is formed in the gasifier by reaction with steam and oxygen or with steam and air. The carbonaceous residue or coke formed in the hydrogasifier may be supplemented by introducing fossil fuels including bituminous coal, char, lignite, or oil shale into the gasifier, to produce more of the gaseous mixture. The gaseous mixture is then converted to a hydrogen rich gas either directly, by a carbon monoxide shift reaction (when steam and oxygen are used in the gasifier) or indirectly, by the steam-iron process (when steam and air are used in the gasifier). In the steam-iron process, the gaseous mixture is the reducing agent for iron oxides formed when added steam is converted to hydrogen over the reduced iron oxides. The hydrogen rich gas is purified and primarily includes hydrogen alone, in the case of the steam-iron process, or a combination of hydrogen and methane, in the case of the carbon monoxide shift process. This hydrogen rich gas is then introduced into the hydrogasifier to form the high methane content gas. All or a portion of the solids leaving the gasifier are recirculated back to the hydrogasifier.

3,708,270

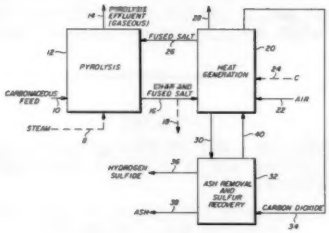
PYROLYSIS METHOD

James R. Eirk, Thousand Oaks, and Donald A. Huber, Canoga Park, Calif., assignors to North American Rockwell Corporation

Filed Oct. 1, 1970, Ser. No. 77,225

Int. Cl. C01b *1/00, 49/00;* **C10j** *3/06*

U.S. Cl. 48—202 **7 Claims**



A method of pyrolyzing carbonaceous materials including industrial, municipal and agricultural wastes is disclosed. The carbonaceous material is pyrolyzed by contact with a molten alkali metal salt which contains sulfide and/or sulfate ions. The products of the reaction are a pyrolysis gas and char. Char is consumed in converting the sulfate to sulfide. A reactive source of oxygen is introduced into the melt converting sulfide back to sulfate and liberating heat to the melt to sustain the operation.

3,708,271

APPARATUS FOR PRODUCING GLASS FIBERS

Klaus L. Loewenstein, Earnold J. Eisenberg, both of East Setauket, N.Y., and Saul Warshaw, New York, N.Y., assignors to Oliver Glass Fiber Corporation, Farmingdale, N.Y.

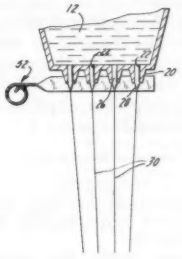
Filed Dec. 7, 1970, Ser. No. 95,757

Int. Cl. C03b *37/02*

U.S. Cl. 65—12 **5 Claims**

An improved fin cooler structure for use in apparatus for the production of continuous glass filaments attenuated from streams of glass flowing through orifices in a stream feeder comprising elongated members or fins of a non-ferrous metal disposed in heat-transferring relation with the streams of glass fibers thereby to absorb and convey away heat from cones of glass formed by the glass flowing through the orifices to rapidly cool the glass of the streams as well as to stabilize the environment by isolating the cones of glass from atmospheric air currents. The fin cooler structure is formed of a single sheet of material by cutting the fin members in a portion of a

flat sheet of material and rolling the uncut portion of the sheet to form a tubular member through which heat conducting



fluid, such as water, may be passed to increase the heat absorbing efficiency of the fin cooler structure.

3,708,272

METHOD OF PROVIDING A LEAD WIRE SEAL

Richard Eugene Hamon, Syracuse, N.Y., assignor to General Electric Company, Syracuse, N.Y.

Filed Jan. 4, 1971, Ser. No. 103,755
Int. Cl. C03c *29/00*
U.S. Cl. 65—59 **6 Claims**

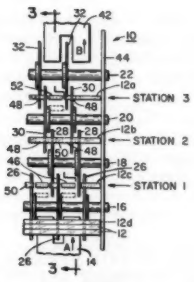
A method for creating an improved seal between oxide-coated lead wires and the glass envelope of an evacuated electron discharge tube. A group of lead wires are disposed in a suitable array and then surrounded by a glass blank. As the lead wires and glass are heated to soften the glass preparatory to the formation of a seal, the heat causes an increased buildup of oxide upon the side of the lead wires remote from the surface of the glass. A reducing flame is then applied to the inner surfaces of the lead wires to diminish the thickness of the undesired oxide buildup. The softened glass is then forced about the lead wires, dissolving a portion of the remaining oxide to produce a hermetic seal.

3,708,273

AUTOMATIC TUBE TRANSFER FIREPOLISHING APPARATUS AND METHOD

Angelo Michael Mitchell, Danville, Va., assignor to Corning Glass Works, Corning, N.Y.

Filed Dec. 16, 1970, Ser. No. 98,597
Int. Cl. C03b *29/04*
U.S. Cl. 65—120 **6 Claims**



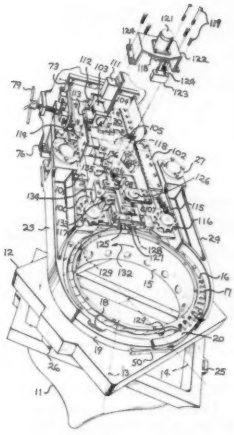
An automatic transfer firepolishing apparatus and method for firepolishing glass tubes; the transfer mechanism including multiple spaced sets of tandem discs rotatable on spaced axes with each disc having at least one peripheral notch for transferring the tube. The overlapping disc peripheries provide several stations upon which the tube may be supported and rotated while being sequentially heated at alternate stations by movable, continuously-operating heating means. A method of firepolishing sets forth the transferring, rotating, heating and cooling steps required in sequentially firepolishing pluralities of alternating, axially-spaced first and second portions of the tube.

3,708,274

METHOD OF LIFTING A TV FUNNEL MOLD RING OFF A MOLD, ORIENTING IT INTO POSITION, AND SETTING ON FUNNEL MOLD

John F. Fleck, Columbus, Ohio, assignor to Owens-Illinois, Inc.

Filed Aug. 18, 1967, Ser. No. 661,665
Int. Cl. C03b *11/00, 9/40, 9/00*
U.S. Cl. 65—307 **13 Claims**



An apparatus for orienting part of a glass forming mold. An apparatus employing a pick-up mechanism that disengages the top ring of a mold and orients it by rotation in a horizontal direction before engaging the ring once again with the main portion of the mold. A method of orienting the top ring section of a glass forming mold by grasping the mold by a flanged portion thereof, lifting the ring so that it is disengaged from the mold, arcuately displacing the ring section until it achieves a predetermined orientation, positioning the oriented ring upon the mold, and releasing the ring so that it may rotate with the mold.

3,708,275

MANUFACTURE OF ALKALI METAL PHOSPHATES

Ernest C. Camp, Jr., Barrington, N.J., assignor to Cities Service Company, New York, N.Y.

Continuation-in-part of Ser. No. 725,139, April 29, 1968, Pat. No. 3,563,703. This application Oct. 28, 1970, Ser. No. 84,907
Int. Cl. C05b *7/00*
U.S. Cl. 71—1 **14 Claims**

Alkali metal phosphates can be prepared by adding an alkali metal halide to a solution of phosphoric and nitric acids. The resulting gases can be recovered. After removal of halogen, as by boiling, the solution can be adjusted in nitric acid content and neutralized to yield a fertilizer. Alternatively, the solution can be substantially denitrated, yielding an alkali metal phosphate. Additionally, after denitration the resulting residue can be calcined to yield a water soluble fertilizer. Micronutrients incorporated in the phosphoric acid-nitric acid solution also can be rendered water soluble by this process.

3,708,276
FERTILIZER COATED WITH DISCONTINUOUS LAYER

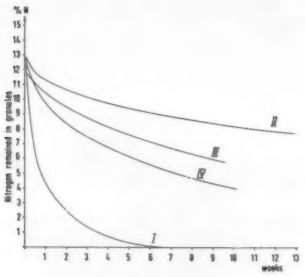
Horstmar Hecht, Castrop-Rauxel, and Horst Schwandt, Henrichenburg, Germany, assignors to Gewerkschaft Victor Chemische Werke, Castrop-Rauxel, Germany

Continuation-in-part of application Ser. No. 659,573, July 11, 1967. This application June 27, 1969, Ser. No. 837,371

Claims priority, application Germany, July 13, 1966, G 47,415

Int. Cl. C05f 11/00

U.S. Cl. 71—27 **7 Claims**



Granular fertilizer having controlled nutrient release is provided by coating a fertilizer with a pervious, discontinuous layer exposed to the atmosphere. The layer is formed of a water-insoluble synthetic resin and particles foreign to the resin.

3,708,277
HERBICIDAL METHOD

Adolf Zeidler, Ludwigshafen (Rhine), Adolf Fisher, Mutterstadt, Pfalz, and Guenther Weiss, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Original application Aug. 17, 1967, Ser. No. 661,232. Divided and this application Jan. 27, 1970, Ser. No. 10,102

Claims priority, appplication Germany, Aug. 30, 1966, P 15 42 836.1

Int. Cl. A01n 9/22

U.S. Cl. 71—91 **4 Claims**

Diazinone dioxides and a method of controlling unwanted plants.

3,708,278
METHOD FOR PREVENTING AND KILLING WEEDS IN RICE

Hiromu Okamoto, Kanagawa-ken, Takuo Ohi, Tokyo, Jyotaro Tamura, Hiratsuka-shi, Saburo Takahashi, Kamakura-shi, Hiroshi Oyama, Atsugi-shi, Hideo Ueda, Fujisawa-shi, Kunihiko Sasaki, Chigasaki-shi, and Hiromichi Ashikawa, Atsugi-shi, Japan, assignors to Hokko Chemical Industry Co., Ltd., Tokyo, Japan

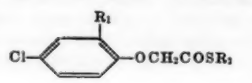
No Drawing. Filed July 31, 1969, Ser. No. 846,599

Claims priority, application Japan, July 31, 1968, 43/53,592; Aug. 15, 1968, 43/57,617, 43/59,616; July 14, 1969, 44/55,073

Int. Cl. A01n 9/12

U.S. Cl. 71—100 **2 Claims**

Herbicidal compositions which may be used in the form of dust, emulsion, wettable powder, granule, aerosol and which contain, as an essential active ingredient, aryloxymonothioacetic ester respresented by the general formula



wherein R_1 stands for methyl radical and R_2 methyl or ethyl radical, or which contain in addition to above said essential active ingredient other weed killer selected from the group consisting of

2,4-dichlorophenyl-4-nitrophenyl ether
2,4,6-trichlorophenyl-4-nitrophenyl ether
2,4-dichloro-6-fluorophenyl-4-nitrophenyl ether
4,6-bis(ethylamino)-2-methylthio-1,3,5-triazine
4,6-bis(isopropylamino)-2-methylthio-1,3,5-triazine
4,5,7-trichlorobenzthiadiazole-2,1,3.

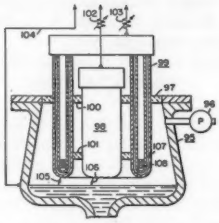
3,708,279
PROCESS OF REFINING METAL IN A VACUUM WITH COAXIALLY MOUNTED NON-CONSUMABLE ELECTRODES

Serafino M. De Corso, Media, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Original application Apr. 1, 1968, Ser. No. 717,560, now Patent No. 3,546,348, dated Dec. 8, 1970. Divided and this application Aug. 27, 1969, Ser. No. 870,761

Int. Cl. C22d 7/00

U.S. Cl. 75—10 V **3 Claims**



Processes for metal heating and treating provide for degassing and/or ingot forming, and utilize at least one nonconsumable electrode having a fluid cooled arcing surface and a magnetic field coil which sets up a field to substantially continuously move the arc around the arcing surface.

3,708,280
HIGH TEMPERATURE LOW ALLOY STEEL

Tohru Mimino; Kazuhisa Kinoshita, and Keisuke Hattori, Kawasaki-shi, Kanagawa-ken, Japan, assignors to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 26, 1970, Ser. No. 83,835

Claims priority, application Japan, Nov. 19, 1969, 44/92413

Int. Cl. C22c 39/04, 39/50

U.S. Cl. 75—124 **8 Claims**

A high temperature low alloy steel having a chemical composition consisting essentially of between about (i) 0.05 – 0.25% C, (ii) 0.05 – 0.80% Si, (iii) 0.40 – 1.30% Mn, (iv) 0.30 – 0.20% Mo, (v) 0.002 – 0.015% N in solid solution, (vi) less than 0.010% Sol. Al, (vii) 0 – 0.70% Cr, (viii) 0 – 0.10% V, and (ix) the balance being Fe + incidental impurities. The steel is preferably subjected to a normalizing heat treatment to obtain a high strength steel useful for extended service at temperatures between 400° and 500°C.

3,708,281
STRUCTURAL ALLOY STEEL CONTAINING COPPER AND OTHER ALLOY ELEMENTS

Eugene R. Andreotti, Geneva, and Sherwood W. McGee, Lisle, Ill., assignors to Amsted Industries Incorporated

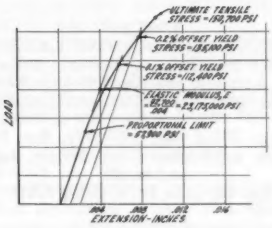
Original application June 28, 1967, Ser. No. 650,570, now Patent No. 3,459,547. Divided and this application Jan. 21, 1969, Ser. No. 828,021

Int. Cl. C22c 37/10

U.S. Cl. 75—124 **3 Claims**

This invention comprises an alloy system fabrication for producing useful steel articles exhibiting tensile

strengths on the order of 150,000 p.s.i. with useful ductility on the order of 1% to 2½% tensile elongation. The alloy system entails suitable metallurgical combinations of iron, carbon, copper, manganese, nickel, tin and minor elements combined through a process of copper liquefica-


ULTIMATE TENSILE STRESS = 150,700 PSI
0.2% OFFSET YIELD STRESS = 138,000 PSI
0.1% OFFSET YIELD STRESS = 112,400 PSI
ELASTIC MODULUS, E = 30,300 / .0004 = 23,175,000 PSI
PROPORTIONAL LIMIT = 87,900 PSI
LOAD
.004 .008 .012 .016
EXTENSION - INCHES

tion and high temperature capillary infiltration. Ferrous constituents in the alloy group are fabricated using metal powders and powder metallurgy techniques entirely. Cuprous members of this alloy system can be either as powdered components or as cast or wrought components.

3,708,282

PRODUCTION OF SINTERED METAL PRODUCTS

Derek James Burr, Solihull, and Walter Betteridge, Beckenham, England, assignors to The International Nickel Company, Inc., New York, N.Y.

No Drawing. Filed Sept. 1, 1970, Ser. No. 68,753
Claims priority, application Great Britain, Sept. 3, 1969, 43,596/69
Int. Cl. B22f *1/00*
U.S. Cl. 75—200 **7 Claims**

Process for production of sintered metal products containing nickel and carbon comprises compacting and sintering special powder mixture containing nickel-coated graphite particles.

3,708,283

PROCESS FOR PREPARING CEMENTED FERROCHROME

Franklin J. Hill, Janeswille, Wis., assignor to The Parker Pen Company, Janesville, Wis.

Continuation-in-part of Ser. No. 14,527, Feb. 26, 1970, abandoned. This application Jan. 19, 1971, Ser. No. 107,804
Int. Cl. B22f *3/12*
U.S. Cl. 75—200 **4 Claims**

There is described a cemented ferrochrome material including from 15 to 99 percent of ferrochrome and from 1 to 85 percent of a metallic binder. The material is made by mixing or milling together particles of ferrochrome and the binder metal until the particle size of the mixture is substantially less than 325 mesh, compacting and heating to a temperature within the range of 1850° – 2400°F. The product has excellent corrosion resistance, high hardness, good strength and is highly impermeable to liquids. It may be used in any applications in which such properties are desirable, such as a ball pen balls, wear pads and mounts adapted to be adhered to materials having compatible coefficients of thermal expansion.

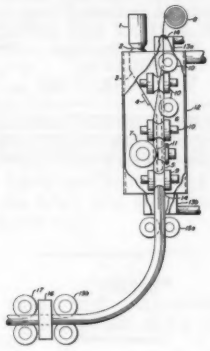
3,708,284

METHOD OF CONVERTING METAL POWDER INTO BAR STOCK

Hung-Chi Chao, Monroeville Borough, Pa., assignor to United States Steel Corporation

Filed Jan. 26, 1970, Ser. No. 5,463
Int. Cl. B22f *1/00*
U.S. Cl. 75—208 CS **8 Claims**

A method and apparatus for producing rod-shaped metal compacts in which the powder charge is fed under vacuum into a continuously formed jacketing tube. The jacketed core is then hot rolled to form the sinter com-



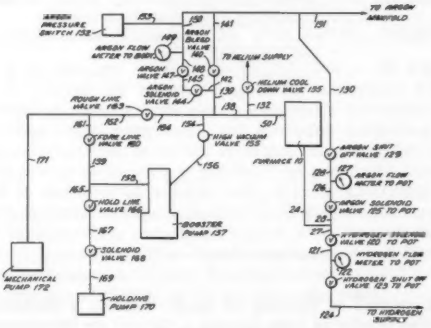
pact; the axial pull of the rolling operation preventing the bulging of tube jacket. The jacket is then removed chemically or by machining.

3,708,285

APPARATUS FOR AND METHOD OF DE-WAXING, PRESINTERING AND SINTERING POWDERED METAL COMPACTS

Gerard Scheyer, Morris Plains, N.J., assignor to Adamas Carbide Corporation, Kenilworth, N.J.

Original application July 25, 1969, Ser. No. 844,972. Divided and this application Jan. 14, 1971, Ser. No. 106,383
Int. Cl. B22f *9/00;* **C22c** *29/00*
U.S. Cl. 75—221 **11 Claims**


TO ARGON MANIFOLD
ARGON PRESSURE SWITCH 153
ARGON FLOW METER TO BOOSTER
ARGON BLEED VALVE 140
TO HELIUM SUPPLY
ARGON VALVE 142
ARGON SOLENOID VALVE 144
HELIUM COOL DOWN VALVE 135
ROUGH LINE VALVE 183
FORE LINE VALVE 180
HIGH VACUUM VALVE 158
FURNACE 11
ARGON SHUT OFF VALVE 129
ARGON FLOW METER TO POT
ARGON SOLENOID VALVE 125 TO POT
HOLD LINE VALVE 186
BOOSTER PUMP 157
SOLENOID VALVE 188
HYDROGEN FLOW METER TO POT
HYDROGEN SHUT OFF VALVE 123 TO POT
MECHANICAL PUMP 172
HOLDING PUMP 170
TO HYDROGEN SUPPLY

In this apparatus a de-waxing operation is performed in hydrogen, and the same vessel is used for vacuum sintering without moving of the part to be heat treated, and in one continuous operation.

3,708,286

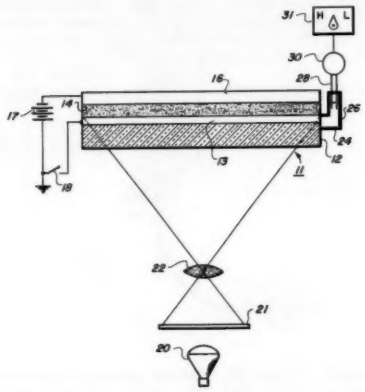
PHOTOELECTROPHORETIC IMAGING WITH ULTRASONIC VIBRATION DURING IMAGING

Terence J. Davies, Santa Barbara, Calif., assignor to Xerox Corporation, Rochester, N.Y.

Filed Oct. 3, 1968, Ser. No. 764,719
Int. Cl. G03g *13/22*
U.S. Cl. 96—1 **5 Claims**

Method and apparatus for improving image density, contrast and quality and photographic speed in an electrophoretic imaging system utilizing a particulate suspension for forming the image. The method and apparatus

stress a layer of the electrophoretic suspension of particles in a carrier on an electrode during imaging by applying a high frequency oscillation, preferably ultrasonic, across the imaging suspension.



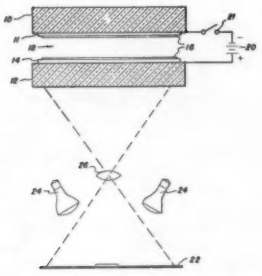
3,708,287
OIL FILM IMAGING

William L. Goffe, Webster, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Continuation-in-part of application Ser. No. 571,343, Aug. 9, 1966. This application Apr. 19, 1971, Ser. No. 134,937

Int. Cl. G03g *13/22*

U.S. Cl. 96—1.3 12 Claims



A method of forming an image wherein a photoconductive insulating layer having a thin oil or interference film thereon and separated from an electrode by a small gap is selectively illuminated by a pattern of light while an electric field is established between the photoconductive layer and the electrode causing liquid transfer in imagewise configuration onto the electrode. During this process an image is also formed on the photoconductive insulating layer. Alternately, a thin oil film may be applied solely to the electrode or to both the photoconductive insulating layer and the electrode.

3,708,288
IMAGE TRANSFER PROCESS

Luke C. Lin, Rochester, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Filed Mar. 21, 1969, Ser. No. 809,328

Int. Cl. G03g *13/14, 13/22*

U.S. Cl. 96—1.4 15 Claims

A method of transferring an image produced by means of the manifold imaging system from an image bearing medium to an image receiving medium. Manifold images are transferred to an image receiving medium by contacting the image with the receiving medium and applying external pressure to the image bearing medium and the image receiving medium.

3,708,289
ELECTROCONDUCTIVE LAYERS

Daniel Maurice Timmerman, Mortsel, August Jean Van Paesschen, Antwerp, and Karel Eugeen Verhille, Mortsel, Belgium, assignors to Gevaert-Agfa N.V., Mortsel, Belgium

No Drawing. Filed Jan. 29, 1970, Ser. No. 6,930

Claims priority, application Great Britain, Jan. 29, 1969, 4,946/69

Int. Cl. G03c *1/76;* G03g *5/00*

U.S. Cl. 96—67 8 Claims

Sheet material coated on at least one side with an electroconductive layer formed essentially of an initially water-soluble addition polymer of plural α,β-ethylenically unsaturated monomers which is convertible by heating to water-insoluble form by an internal cross-linking reaction. 20–95 mol percent of the units of the copolymer are derived from at least one cationic or anionic monomer carrying electroconductive groups, 5–80 mol percent of such units are derived from a monomer carrying reactive halogen atoms and 0–44 mol percent of such units are derived from a monomer carrying an acidic group in free acid or salt form which is reactive with the halogen atoms of units of the second mentioned monomer, at least about 5 mol percent of the last mentioned monomeric units being present where the first mentioned monomeric units are unreactive with the halogen atoms of the second mentioned monomeric units.

3,708,290
INORGANIC PHOTOCONDUCTIVE PIGMENTS IN AN ALKALI SOLUBLE BINDER CONTAINING A POLYMERIC DISPERSING AGENT

Karel Eugeen Verhille, Pansgatelaan 42, Mortsel, Belgium, and Luciaan Frans Voet, Lierse Steenweg 20, St. Katelijne-Waver, Belgium

No Drawing. Continuation-in-part of application Ser. No. 665,219, Sept. 5, 1967. This application Mar. 23, 1971, Ser. No. 127,393

Claims priority, application Great Britain, Sept. 5, 1966, 39,636/66

Int. Cl. G03g *5/08*

U.S. Cl. 96—1.5 4 Claims

A recording material including an electrically conductive support carrying a coating comprising:

(1) 60–95% by dry weight of a finely divided inorganic pigmentary material having photoconductive properties and selected from basic or amphoteric oxides and metal sulphides derived from metals forming basic or amphoteric oxides,

(2) a normally electrically insulating alkali-soluble binder in an effective binding amount, and

(3) a water-soluble polymeric dispersing agent differing in chemical structure from the binder present in said coating in a ratio by weight of about 0.1 to 1.5% by weight of pigmentary material. The dispersing agent is either (a) a copolymer with some recurring units thereof derived from a polymerzable unsaturated monocarboxylic acid, its anhydride or a salt thereof, and other recurring units derived from a polymerizable unsaturated compound containing an amino group, a carbalkoxy group, a carbamyl group, an N-pyrrolidone group or an ether group, or (b) copolymer having some recurring units thereof derived from a polymerizable unsaturated dicarboxylic acid, its anhydride or salt thereof, and other recurring units derived from a polymerizable unsaturated

compound containing an ester group, an amino group, a carbalkoxy group, a carbamyl group, an N-pyrrolidone group or an ether group.

3,708,291

PHOTOSENSITIVE ELEMENTS FOR USE IN ELECTROPHOTOGRAPHY AND METHOD OF MANUFACTURING SAME

Koichi Kinoshita, Narashino-shi, and Takao Kawamura, Sakai-shi, Japan, assignors to Katsuragawa Denki Kabushiki Kaisha, Tokyo-to, Japan

No Drawing. Filed June 25, 1969, Ser. No. 836,628
Claims priority, application Japan, June 27, 1968, 43/44,441
Int. Cl. G03g *5/04*
U.S. Cl. 96—1.5 **8 Claims**

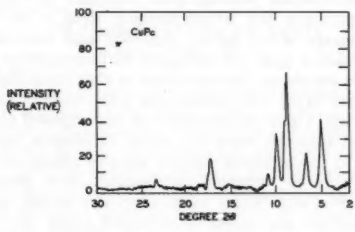
A photosensitive element of the multi-layer type is prepared by first depositing a layer of a Se-Te alloy containing more than 20% of Te to form a first layer, co-depositing the Se-Te alloy and Se to form a second layer and finally depositing Se on the second layer to form a third layer.

3,708,292

π-FORM METAL PHTHALOCYANINE

Paul J. Brach, Rochester, and Hugh A. Six, Webster, N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed May 21, 1971, Ser. No. 145,678
Int. Cl. G03g *5/04*
U.S. Cl. 96—1.5 **22 Claims**



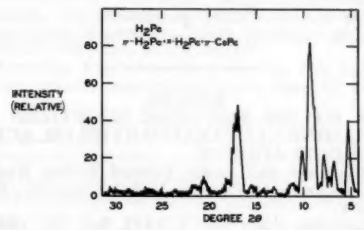
The novel form of phthalocyanine (Pc), namely π-form metal-phthalocyanine, is disclosed. Methods for the preparation and use of said form are also disclosed.

3,708,293

π-FORM METAL-FREE PHTHALOCYANINE

Paul J. Brach, Rochester, and Marcel A. Lardon, Webster, N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed May 21, 1971, Ser. No. 145,677
Int. Cl. G03g *5/04*
U.S. Cl. 96—1.5 **19 Claims**



A novel form of phthalocyanine (Pc), namely π-form metal-free phthalocyanine, is disclosed. Methods for the preparation and use of said phthalocyanine are also disclosed.

3,708,294

PROCESS FOR PREPARING A PHOTOCONDUCTIVE FIBER SHEET

Ichiro Endo, Tokyo, and Ken Soeda, Naka-gun, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

No Drawing. Filed June 29, 1970, Ser. No. 50,899
Claims priority, application Japan, July 2, 1969, 44/52,266
Int. Cl. G03g *5/04*
U.S. Cl. 96—1.6 **7 Claims**

A photoconductive fiber sheet is produced by dyeing with a sensitizing coloring matter a fiber sheet made of organic high polymer fibers capable of acting as a Lewis base against a Lewis acid and forming a charge transfer complex with the Lewis acid and then treating the fiber sheet with the Lewis acid.

3,708,295

PROCESS FOR THE MANUFACTURE OF METALLIC, ELECTRICALLY CONDUCTIVE PATTERNS

Ernst Schumacher, Fribourg, Switzerland, assignor to Ciba-Geigy AG, Basel, Switzerland

No Drawing. Filed Mar. 10, 1971, Ser. No. 123,059
Claims priority, application Switzerland, Mar. 13, 1970, 3,823/70
Int. Cl. G03c *5/00*
U.S. Cl. 96—36.2 **8 Claims**

Process for the manufacture of a metallic, electrically conductive pattern by treating a vesicular record material containing a metallic layer with a first lipophilic, organic solvent for opening the image bubbles, hydrophilizing the image area, etching away the metal in the image area and removing the residual vesicular material with a second, lipophilic, organic solvent.

3,708,296

PHOTOPOLYMERIZATION OF EPOXY MONOMERS

Sheldon Irwin Schlesinger, Hightstown, N.J., assignor to American Can Company, New York, N.Y.

No Drawing. Filed Aug. 20, 1968, Ser. No. 753,869
Int. Cl. G03c *1/70*
U.S. Cl. 96—33 **27 Claims**

A process for polymerizing epoxy monomers which comprises mixing with epoxy monomers photosensitive aryldiazonium compounds and thereafter subjecting the resulting mixture to actinic radiation. The aryldiazonium compounds decompose to produce a polymerization initiator in the form of a Lewis acid, thereby catalyzing the polymerization of the monomer to the polymer. Examples of photosensitive compounds useful in the process are p-nitrobenzenediazonium hexafluorophosphate, p-N-morpholinobenzenediazonium hexafluoroarsenate, and 2,4-dichlorobenzenediazonium hexachloroantimonate.

3,708,297

STABILIZING WITH IODIDE AN IMAGEWISE EXPOSED PHOTOSENSITIVE COMPOSITION CONTAINING A HALOGENATED PHOTOACTIVATOR AND AN ORGANIC AMINE COLOR FORMER

Albert Lucien Poot, Kontich, and Edwin Hendrik Hazenbosch, Mechelen, Belgium, assignors to Agfa-Gevaert, Mortsel, Belgium

No Drawing. Filed Oct. 8, 1970, Ser. No. 79,283
Claims priority, application Great Britain, Oct. 9, 1969, 49,685/69
Int. Cl. G03c *5/24*
U.S. Cl. 96—48 **11 Claims**

A photographic print-out image obtained by exposing to activating electromagnetic radiation a recording element comprising a photosensitive organic polyhalogen compound releasing on such exposure a halogen-containing free radical into working relationship with an amine

having an aromatic character and reactive with the photolytically produced free radical to form a dye is stabilized against discoloration by treating the remaining unexposed polyhalogen compound with a compound containing ionically bound iodine.

3,708,298

METHOD OF PRODUCING DIRECT POSITIVE IMAGES WITH PHOTOGRAPHIC SILVER HALIDE MATERIAL CONTAINING COMPOUND RELEASING IODIDE IONS

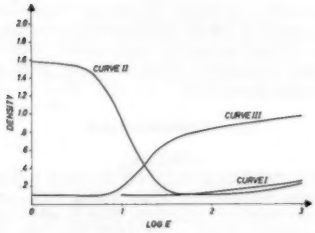
Gerard Laurens Vanreusel, Hove, Paul Désiré Van Pee, Edegem, and Jules Maria De Laet, Mortsel, Belgium, assignors to Agfa-Gevaert, Mortsel, Belgium

Continuation-in-part of applications Ser. No. 677,519, Oct. 24, 1967, now abandoned, and Ser. No. 110,635, Jan. 28, 1971, said application Ser. No. 110,635, being a continuation of application Ser. No. 546,640, May 2, 1966, now abandoned, and said application Ser. No. 677,519 being a continuation-in-part of said application Ser. No. 546,640. This application Feb. 1, 1971, Ser. No. 111,705

Claims priority, application Great Britain, Apr. 30, 1965, 18,335/65

Int. Cl. G03c *5/24*

U.S. Cl. 96—64 **33 Claims**



In a known method of photographically producing direct positive images by exposing a light-sensitive material carrying a silver halide emulsion layer of the type forming a latent image predominantly in the inner part of the silver halide grains, i.e. a so-called internal image emulsion, treating the exposed material with a surface developer and overall exposing the material during this treatment to actinic light of low intensity, an image having improved density and contrast is obtained by incorporating within the emulsion layer a compound releasing iodide ions in an aqueous medium. The concept can be applied to the formation of black-and-white images as well as colored images.

3,708,299

PHOTOGRAPHIC DEVELOPING METHOD

Isao Shimamura, Yoo Iijima, and Haruhiko Iwano, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

No Drawing. Filed Oct. 8, 1970, Ser. No. 79,335

Claims priority, application Japan, Oct. 8, 1969, 44/80,538

Int. Cl. G03c *1/06, 5/26, 5/30*

U.S. Cl. 96—66.3 **8 Claims**

A method and composition for processing a silver halide black and white photographic material wherein the silver halide grains are less than 0.3 micron which comprises developing the photographic material with a developing solution comprising hydroquinone (substituted or unsubstituted) as the main developing agent and imidazole in a minor amount.

3,708,300

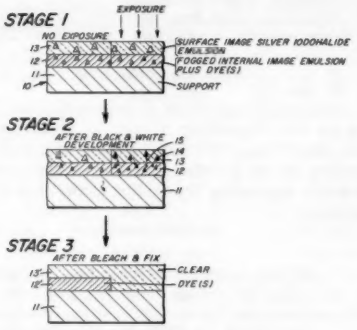
SILVER-DYE-BLEACH PHOTOGRAPHIC MATERIALS

George W. Luckey, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 19, 1970, Ser. No. 90,928

Int. Cl. G03c *1/76*

U.S. Cl. 96—73 **10 Claims**



Silver-dye-bleach photographic elements are prepared by incorporating the image-forming dyes in a fogged internal image silver halide emulsion and coating over this emulsion a layer of unfogged surface-sensitive silver iodohalide emulsion. The dye layer is thus separated from the sensitive layer with consequent improvement in speed and contrast. Upon development of the exposed element, iodide ion released from the silver iodohalide emulsion migrates to the adjacent fogged internal image emulsion and uncovers the internal fog centers, thus permitting their development. Then, upon silver-dye-bleach processing, a positive dye image is obtained which has ample density and contrast.

3,708,301

AZO COUPLERS OF THE CYANOACETYLATED POLYAMINE CLASS

Peter Muller, Port Washington, N.Y., assignor to Andrews Paper & Chemical Co., Inc., Port Washington, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 805,003, Mar. 6, 1969. This application Nov. 24, 1969, Ser. No. 879,553

Int. Cl. G03c *1/58*

U.S. Cl. 96—91 R **2 Claims**

Cyanoacetylated polyamines as a new class of azo couplers, useful in the diazotype reproduction process as coupling components for diazotype reproduction materials. The cyanoacetylated polyamines are substantially non-volatile, non-migratory and exhibit excellent stability.

3,708,302

SILVER HALIDE EMULSION SENSITIZED WITH THIOAMINE-GLUTARALDEHYDE OR ACRYLIC ALDEHYDE ADDUCT

James Plakunov and James Edward Koller, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Jan. 7, 1971, Ser. No. 104,768

Int. Cl. G03c *1/28*

U.S. Cl. 96—107 **8 Claims**

Coating compositions comprising a hydrophilic colloid and an adduct of a first compound which is a thioamine with a second compound which is glutaraldehyde or acrylic aldehyde. The compositions when coated upon

photographic materials effect a significant speed increase without detrimentally affecting the other sensitometric properties of said materials.

3,708,303

PHOTOGRAPHIC ELEMENTS AND PROCESSES LITHOGRAPHIC SILVER HALIDE ELEMENT CONTAINING A 1-(AMIDOPHENYL)-5-MERCAPTOTETRAZOLE SENSITIZING AGENT AND DEVELOPMENT PROCESS OF USING SAME

Eugene D. Salesin, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of Ser. No. 754,967, Aug. 23, 1968, abandoned. This application Jan. 12, 1971, Ser. No. 105,993

Int. Cl. G03c *5/24, 1/28, 5/30*

U.S. Cl. 96—107 **11 Claims**

High contrast photographic elements comprising a support coated with a silver halide emulsion wherein the halide comprises at least about 50 mole percent chloride and containing a 1-(amidophenyl)-5-mercaptotetrazole, provide improved speed control without undesired change in sensitometric characteristics. Methods for processing such elements in a continuous transport processing machine are also described.

3,708,304

USE OF DIVALENT METAL SALT IMAGE AMPLIFIERS IN PHOTOSENSITIVE AND THERMOSENSITIVE ELEMENTS

Gary Lynn Hiller, Rochester, N.Y., assignor to Eastman Kodak Co., Rochester, N.Y.

Filed June 3, 1970, Ser. No. 43,173

Int. Cl. G03c *1/02*

U.S. Cl. 96—114.1 **27 Claims**

A divalent metal salt, such as zinc acetate, cadmium acetate or cupric acetate, in combination with an oxidation-reduction image-forming combination containing a heavy metal salt oxidizing agent, such as silver behenate, and a reducing agent, such as a bis-naphthol reducing agent, in a photosensitive and thermosensitive element suitable for dry processing with heat, provides increased image density with no adverse increase in background density. A combination of a bis-β-naphthol reducing agent and zinc acetate, cadmium acetate or cupric acetate in conjunction with a stable source of silver for physical development is useful in photosensitive elements for dry processing with heat. The element can contain a sensitizing dye, an activator-toning agent and other addenda employed in elements for dry processing with heat. A stable, developed image can be provided by heating the element after exposure. The photosensitive component can be photographic silver halide or other suitable photosensitive metal salts.

3,708,305

PHOTOPOLYMERIZABLE COMPOSITIONS COMPRISING CELLULOSE DERIVATIVE

Shunichi Koyanagi and Kinya Ogawa, Naoetsu, Fujio Sekigawa, Okata-machi, Hiroshi Suzuki, Naoetsu, and Shigeru Ono, Kamakura, Japan, assignors to Shinetsu Chemical Company, Tokyo, Japan

No Drawing. Filed June 8, 1971, Ser. No. 151,140

Claims priority, application Japan, June 17, 1970, 45/52,638

Int. Cl. G03c *1/68, 1/70*

U.S. Cl. 96—115 P **7 Claims**

A photopolymerizable composition consisting of a photopolymerizable unsaturated compound, a photosensitizer and a cellulose derivative, said cellulose derivative being an ester of a polybasic acid of a cellulose ether represented by the general formula $R^1{}_mR^2{}_nA$ wherein R^1 is a hydroxyalkyl radical having 3 or 4 carbon atoms, R^2 is hydrogen or an alkyl radical having 1 or 2 carbon atoms, m and n are positive integers and A is a cellulose residue. Said composition is suitable for making printing plates, etc.

3,708,306

COMPOSITION USING PSYLLIUM BY-PRODUCTS FOR PET FOODS

Milo Don Appleman, 4315 San Rafael Ave., Los Angeles, Calif. 90042

No Drawing. Continuation of appplication Ser. No. 665,252, Sept. 5, 1967. This application Aug. 12, 1970, Ser. No. 63,317

Int. Cl. A23k *1/14*

U.S. Cl. 99—2 R **3 Claims**

The applicant has found a way to convert "psyllium flours" or other psyllium or plantago residues, a proteinaceous material known in the trade as "lard gelatin" or "Dri Pro" and other feed materials and beneficial chemicals into soft moist, canned or dry pet foods. The two ingredients named are important ingredients and, although preferably used together, said foodstuffs may be made by including only one and substituting other materials for the other. Examples of these processes are included in this application. All of these foodstuffs have been tested in animal feeding and found to be extremely palatable and nourishing to the animals concerned. A method of inactivating certain enzymes in the psyllium that otherwise cause darkening or blackening of colors in pet foods, such as semi-moist burgers and biscuits, has also been found and claim is made for the exclusive use of this process.

3,708,307

METHOD OF DRYING ACID WHEY AND SWEET SKIM MILK SOLIDS IN COMBINATION

Erik Lundstedt, South Chatham, Mass., assignor to H. P. Hood Sons, Inc., Boston, Mass.

Filed May 15, 1969, Ser. No. 882,954

Int. Cl. A23c *21/00, 1/04*

U.S. Cl. 99—57 **7 Claims**

Converting acid whey to a useful product by heat denaturing unneutralized acid whey, separately heat denaturing the serum proteins of a liquid milk product containing sweet skim milk and separately atomizing the whey and the milk product simultaneously through separate nozzles in a single dryer. The acid whey solids do not substantially exceed about 43% by weight of the combined acid whey and skim milk solids. The process is characterized by the avoidance of neutralizing the acid whey prior to treatment thus making the dried product suitable for human consumption.

3,708,308

PRODUCTION OF PUFFED READY-TO-EAT CEREAL PRODUCTS

William T. Bedenk, and John W. Mitchell, both of Cincinnati, Ohio, assignors to The Proctor & Gamble Co., Cincinnati, Ohio

Filed Sept. 30, 1970, Ser. No. 76,990

Int. Cl. A23l *1/18*

U.S. Cl. 99—81 **10 Claims**

Production of a ready-to-eat breakfast cereal containing corn is improved by subjecting the corn to intensive milling to increase its free starch content to at least 12 percent prior to processing it into the breakfast cereal. The milling of the corn results primarily in increased puffability and thereby tenderness.

3,708,309

CAKE MIX

George E. Johnson, Minneapolis, Minn., and Penelope C. Rohleder, Aspen, Colo., assignors to General Mills, Inc.

No Drawing. Filed Apr. 7, 1971, Ser. No. 132,223

Int. Cl. A23l *1/10*

U.S. Cl. 99—94 **5 Claims**

Hand mixable cake mixes made with agglomerated all purpose wheat flour. These mixes have outstanding shelf stability and produce cakes having home made style textures.

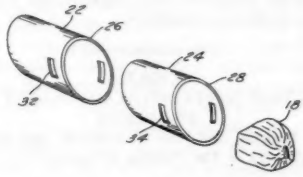
3,708,310
PROCESSING OF SOYBEANS
Sam Kasakoff, New York, N.Y., assignor of a fractional part interest to Michael Ebert, New York, N.Y.
No Drawing. Filed May 6, 1970, Ser. No. 35,249
Int. Cl. A23l *1/20*
U.S. Cl. 99—98 7 Claims

A process for rendering soy beans more palatable, the process involving treatment of the beans in a water solution containing papain, pectin and ascorbic acid. The soy beans are immersed for a period sufficient to permit absorption of the solution to a point close to saturation, after which the residual solution is drained and the saturated beans permitted to dry in air for a period sufficient to effect swelling thereof. The resultant soy beans may thereafter be roasted to provide a nut-like product.

3,708,311
METHOD OF FRYING
Andrew Bolton, Peter John Philpott, and Horace William Scoats, Bedford, England, assignors to Lever Brothers Company, New York, N.Y.
Continuation of application Ser. No. 639,138, May 17, 1967. This application Sept. 4, 1970, Ser. No. 69,980
Claims priority, application Great Britain, May 18, 1966, 22,201/66
Int. Cl. A23l *1/12*
U.S. Cl. 99—100 P 4 Claims

Process for frying in which pieces of a foodstuff (i.e. potatoes) are passed into a stream of hot frying oil moving fast enough to carry them away and to keep them separate from each other, wherein they are sufficiently fried that they will not adhere to one another, finishing the frying in the second stage of the fryer and then removing them.

3,708,312
POULTRY PRODUCT AND METHOD
Sidney Malinow, 7830 W. 97th Place, Hickory Hills, Ill. 60457, and Joseph B. Craine, 7734 Palatine Ave., Chicago, Ill. 60614
Filed Feb. 8, 1971, Ser. No. 113,347
Int. Cl. A22c *21/00;* A23b *1/06*
U.S. Cl. 99—194 12 Claims

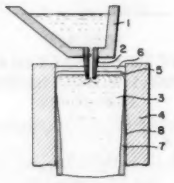


The posterior opening of an eviscerated fowl is held open by a tubular device comprising a pair of telescoped members, through which stuffing may be introduced, and in which giblets or other items may be carried.

3,708,313
METALIZING COMPOSITIONS
Oliver A. Short, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Division of application Ser. No. 14,631, Feb. 26, 1970, now Patent No. 3,620,713, which is a continuation-in-part of application Ser. No. 756,358, Aug. 30, 1968, now abandoned, which in turn is a continuation-in-part of application Ser. No. 469,858, June 29, 1967, now abandoned. This application May 21, 1971, Ser. No. 145,904
Int. Cl. C09d *5/24*
U.S. Cl. 106—1 4 Claims

Acid chloride solutions of noble metals are prepared; the metal is precipitated as a metal-ammonia complex and then reduced to yield a relatively coarse noble metal precipitate powder. Metalization compositions containing the noble metal powders are printed and fired to form various electrical circuit components.

3,708,314
AGENT FOR ADDING TO A MOULD IN WHICH MOLTEN FERRITIC STAINLESS STEEL IS CAST BY A CONTINUOUS CASTING PROCESS
Tohru Kishida, Wakayama-shi, Wakayama-ken; Tadashi Arikawa, Fuchu-shi, Tokyo; Shigeru Matsuyama, Utsunomiya-shi, Tochigi-ken, and Shinobu Fukushige, Imaichi-shi, Tochigi-ken, all of Japan, assignors to Sumitomo Metal Industries, Ltd., Osaka-shi, Osaka-fu and Aikoh Co., Ltd., Tokyo, Japan
Filed Aug. 5, 1971, Ser. No. 169,366
Claims priority, application Japan, Aug. 12, 1970, 45/70043
Int. Cl. B28b *7/36*
U.S. Cl. 106—38.27 1 Claim



An agent for adding to a mould in which molten ferritic stainless steel is cast by continuous casting process characterized by containing 20 to 35 percent by weight of fly ash, 30 to 40 percent by weight of Portland cement and/or blast furnace slag, 20 to 27 percent by weight of fluorspar, 2 to 15 percent by weight of one or more of a carbonate, silicate and the like, 5 to 10 percent by weight of one or more of a fluoride, silicofluoride and the like and 5 to 10 percent by weight of one or more of such carbonaceous substances as coke, graphite and charcoal, and having a melting point of 1,000° to 1,100° C and a viscosity of 0.1 to 5.0 poise at 1,500°C and an average particle size less than 100 meshes.

3,708,315
CERAMIC NIOBATE DIELECTRIC MATERIALS
Yoshihiro Matsuo, Hiromu Sasaki, and Shigeru Hayakawa, Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed June 12, 1970, Ser. No. 45,871
Claims priority, application Japan, Oct. 13, 1969, 44/81,982, 44/81,985
Int. Cl. C04b *33/00*
U.S. Cl. 106—39 R 3 Claims

A ceramic material in a perovskite structure having a high dielectric permittivity, a low power factor and a low temperature coefficient of permittivity, the composition of which is in a chemical formula of

$$(Ba_xNa_{1-x})\ (Na_{0.25x}Nb_{1-0.25x})O_3$$

wherein x ranges from 0.20 to 0.95 in accordance with the inventions. The ceramic dielectric composition of

$$(Ba_xNa_{1-x})\ (Na_{0.25x}Nb_{1-0.25x})O_3$$

can be modified by substitution of Sr for Ba or Li for Na in accordance with the inventions.

3,708,316
GLASS

Gleb Alexandrovich Stepanov, ulitsa 1 Mashinostroeniya 2/7, korpus 1, kv. 158; Semen Semenovich Chernyakov, Valovaya ulitsa 8/18, kv. 146; and Tsetsiliya Aronovna Karchmar, 1 Kirpichny pereulok 14, kv. 62, all of Moscow, U.S.S.R.

No Drawing. Filed Jan. 13, 1970, Ser. No. 2,666
Int. Cl. C03c *3/10, 3/04, 3/30*
U.S. Cl. 106—53 1 Claim

A glass for conical portions of kinescope bulbs containing (percent by weight):

SiO_2	58.8–60.8
Al_2O_3	3.0–4.0
MgO	2.0–3.0
CaO	4.9–6.1
BaO	2.0–2.6
Na_2O	5.3–6.5
K_2O	7.6–9.6
F_2	0.5–1.1
Sb_2O_3	0.15–0.35
PbO	10.0–11.0

into the composition of which there is added Li_2O in the amount of 0.3 to 0.7 percent by weight.

3,708,317
METALLURGICAL FURNACE LINING AND METHOD OF PRODUCTION

Arthur John Owen, Worksop, Great Britain; Reier Visser, Driehuis, Netherlands, and Jacobus Van Laar, Santpoort, Netherlands, assignors to Koninklyke Nederlandsche Havgovens En Staalfabrieken N.V., Ijmuiden, Netherlands

Continuation-in-part of Ser. No. 766,644, Oct. 9, 1968, abandoned. This application Dec. 7, 1970, Ser. No. 95,986
Int. Cl. B44d *1/02*
U.S. Cl. 106—56 13 Claims

This invention relates to bricks and other refractory bodies for lining metallurgical equipment such as blast furnaces which are made resistant to alkali attack by impregnation with phosphorus compounds.

3,708,318
METALLIC PAINT

Donald R. Reinhart, Cockeysville, and Russell A. Fritts, Phoenix, Md., assignors to Conchemco, Incorporated, Kansas City, Mo.

No Drawing. Filed Aug. 18, 1970, Ser. No. 64,801
Int. Cl. C08g *51/04*
U.S. Cl. 106—193 M 19 Claims

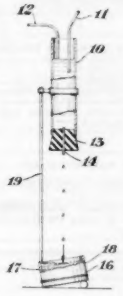
An improved coating composition adapted to yield a finish having an appearance and texture similar to that of a mechanically finished metal surface is provided which includes a suitable film-forming vehicle and an improved pigment. The pigment comprises finely divided non-leaving flake aluminum particles in a size distribution ranging from approximately 30 microns to approximately 200 microns; a natural or synthetic pearl simulating agent; and large, inert particles of silica gel, all of which are distributed through the coating. A trace amount of yellow toning pigment such as burnt sienna may also be included.

3,708,319
STABILIZING SOILS AND ACCUMULATIONS OF FINE PARTICULATE MATERIAL

Kenneth Hugh Nimerick, Tulsa, and Louis Hugh Eilers, Inola, Okla., assignors to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of application Ser. No. 786,464, Dec. 23, 1968. This application Apr. 3, 1970, Ser. No. 25,363
Int. Cl. C08h *17/02;* C09d *3/26*
U.S. Cl. 106—253 11 Claims

Surfaces of finely divided material, e.g. soils, mine tailings, coal dust, lime, or the like, are stabilized against movement caused by wind and/or water by applying to the surface a drying oil which may optionally contain

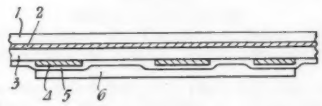


an accelerator to the drying process and/or a water-swellable polymer.

3,708,320
TRANSFERS

Gerald Covington Hurst, Coulsdon, and Alan Belasco, Kenley, England, assignors to George M. Whiley Limited, South Ruislip, Middlesex, England

Filed Oct. 2, 1969, Ser. No. 863,143
Claims priority, application Great Britain, Oct. 14, 1968, 48,648/68
Int. Cl. B41m *3/12;* B44d *1/14*
U.S. Cl. 117—3.3 3 Claims



This invention relates to transfers which include a carrier sheet having disposed thereon a release layer, a lacquer layer, an ink or dye layer covering an area less than that of the carrier sheet and adapted to be protected by said lacquer layer, and a layer formed from a metal and superposed on the ink or dye layer.

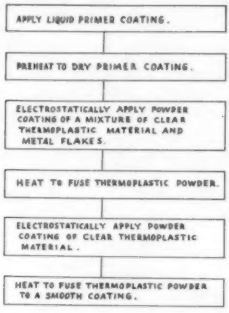
3,708,321
METHOD FOR APPLYING A METALLIC FLAKE FINISH

Franklin E. Spieles, Delphos, Ohio, assignor to Hagan Manufacturing Company, Delphos, Ohio

Filed Sept. 18, 1970, Ser. No. 73,423
Int. Cl. B05b *5/02;* B44d *1/092, 1/094*
U.S. Cl. 117—17 2 Claims

A method for applying a decorative, metallic flake finish to an article. The method comprises the steps of: (1) heating the article to above the melting temperature of a preselected transparent thermoplastic resin; (2) while the article is hot, coating the article with a mixture of aluminum foil flakes and the thermoplastic resin in powder form; (3) reheating the article until the powdered resin is fused; (4) while the article is hot, electrostatically coating the article with a second layer of a powdered, transparent thermoplastic resin; and (5) reheating the article to fuse the second powdered resin coating into a smooth layer. A primer coating may be applied to the article to increase adhesion between the article and the decorative finish. Cellulose acetate butyrate is a preferred thermoplastic resin. The prime-coating may be applied

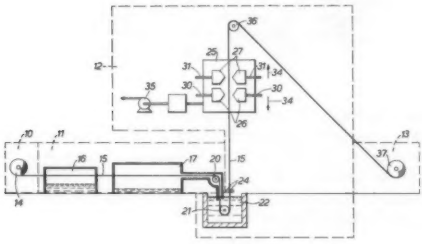
either in liquid form by spraying, or in powdered form by means of either a fluidized bed or an electrostatic sprayer. The powder coating may be applied by a fluidized bed.


APPLY LIQUID PRIMER COATING.
PREHEAT TO DRY PRIMER COATING.
ELECTROSTATICALLY APPLY POWDER COATING OF A MIXTURE OF CLEAR THERMOPLASTIC MATERIAL AND METAL FLAKES.
HEAT TO FUSE THERMOPLASTIC POWDER.
ELECTROSTATICALLY APPLY POWDER COATING OF CLEAR THERMOPLASTIC MATERIAL.
HEAT TO FUSE THERMOPLASTIC POWDER TO A SMOOTH COATING.

3,708,322
METHOD OF PRODUCING A COATED FERROUS SUBSTRATE

Albert Edward Jackson, Gwernaffield Mold, and Richard Fred Williams, Deeside, both of England, assignors to British Steel Corp., London, England

Filed Oct. 2, 1970, Ser. No. 77,585
Claims priority, application Great Britain, Oct. 9, 1969, 49,614/69
Int. Cl. B44d *1/094, 1/34*
U.S. Cl. 117—31 **11 Claims**



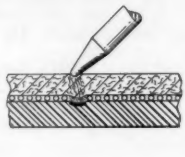
The invention concerns a method of producing a coated ferrous substrate having improved spot welding characteristics comprising introducing a ferrous substrate into a bath of molten metallic coatant so as to coat the substrate therewith, withdrawing the coated substrate from the bath, and thereafter directing particles of metallic iron or iron-based alloy onto the coated substrate, before the molten coatant thereon solidifies, so that the particles are retained adjacent the surface of the coatant during solidification of the latter.

3,708,323
COUPLET TRANSPARENCY MANUFACTURING PROCESS

Howard G. Stroble, Dayton, Ohio, assignor to The National Cash Register Co., Dayton, Ohio

Filed Dec. 28, 1970, Ser. No. 101,664
Int. Cl. B41m *5/16*
U.S. Cl. 117—36.7 **4 Claims**

A couplet transparency data display manufacturing system is disclosed wherein, of two sheets, an oversheet is a flexible carrier for solvent and the undersheet is a transparent polymeric material readily dissolved by the solvent of the carrier. Preferred for the oversheet is paper or a paper substitute capable of accepting printed information.



3,708,324
METHOD OF GROWING SILICONE ELASTOMER

Leo F. Stebleton, Midland, Mich., assignor to Dow Corning Corp., Midland, Mich.

Filed June 1, 1970, Ser. No. 42,589
Int. Cl. B44d *1/092*
U.S. Cl. 117—47 R **47 Claims**

Silicone rubber is grown on a substrate by placing a substrate having a curing catalyst on the surface in contact with an uncatalyzed silicone elastomer composition for a time sufficient to grow silicone elastomer and then removing the substrate from the uncatalyzed silicone elastomer composition. This method is useful in coating substrates with silicone elastomer and in making silicone elastomer devices.

3,708,325
PROCESS FOR METAL COATING BORON NITRIDE OBJECTS

Robert G. Kurtz, Arvada, and Theodore Van Vorous, Boulder, Colo., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Apr. 14, 1970, Ser. No. 28,519
Int. Cl. C23c *11/00, 13/00, 13/02*
U.S. Cl. 117—61 **6 Claims**

Disclosed is a process for metal coating boron nitride objects containing less than 0.1 percent boric oxide. The process involves vacuum degassing at a temperature of from 200° to 250° C. at a pressure no greater than about 4.0×10^{-6} torr and heating the boron nitride object to a temperature of at least about 200° C. under an inert gas pressure no greater than about 2.5×10^{-2} torr. While maintaining the reduced pressure and elevated temperature, beryllium is ion plated upon the object to form a boron nitride-beryllium composite. The metal coating is then deposited upon the boron nitride-beryllium composite by conventional means to form a boron nitride/beryllium/metal matrix.

3,708,326
STABILIZATION OF ACRYLIC FIBERS AND FILMS

Edward Clarence Chenevey, North Plainfield, and Robert Michael Kimmel, Springfield, N.J., assignors to Celanese Corporation, New York, N.Y.

No Drawing. Filed Jan. 25, 1971, Ser. No. 109,672
Int. Cl. B44d *1/48;* **B32b** *27/30*
U.S. Cl. 117—62 **18 Claims**

An improved process for the thermal stabilization of an acrylic fibrous material or film is provided. The fibrous precursor or film is impregnated with a stabilization promoting agent by contact with a solution of the same provided at a moderate temperature, dried to remove the solvent, and heated in an oxygen-containing atmosphere at a more highly elevated temperature until a stabilized fibrous material or film is formed. The stabilization promoting agents employed in the present process are mineral acids, sulfonic acids, and certain carboxylic acids. The resulting stabilized fibrous material or film

is non-burning, and may be utilized as a fire resistant fiber, fabric, or film, or optionally carbonized or carbonized and graphitized to form a carbonaceous fibrous material or film.

3,708,327

DURABLE PRESS RAINWEAR

Charles Tomasino and Steve Clifton James, Greensboro, N.C., assignors to Burlington Industries, Inc., Greensboro, N.C.

No Drawing. Filed Aug. 14, 1970, Ser. No. 63,921

Int. Cl. D06n *3/00*

U.S. Cl. 117—76 T **4 Claims**

Water-repellent, soil release rainwear fabric having durable press properties is prepared by applying thereto a cured durable press textile resin, a soil release polymer, and a film-forming water-repellent selected from the group consisting of fluorochemical and fatty water repellents.

3,708,328

FIRE-PROOFING OF POLYESTER FIBERS

Wilhelm Loffler Kelkheim, Taunus, and Martin Rieber, Schonberg, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Feb. 12, 1971, Ser. No. 115,066

Claims priority, application Germany, Feb. 14, 1970, P 20 06 899.9

Int. Cl. B44d *1/50*

U.S. Cl. 117—93.31 **13 Claims**

Linear polyesters are rendered flame-proof by contacting them with phosphoric acid-allyl-2,3-dibromopropyl esters and polymerizing said esters on the substrate by a heat treatment, optionally with the aid of a free radical generator.

3,708,329

ELECTROLESS COPPER PLATING

Leonard Norman Schonenberg, Livingston, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J.

Filed Sept. 10, 1971, Ser. No. 179,421

Int. Cl. B44d *1/092;* C23c *3/02*

U.S. Cl. 117—47 R **12 Claims**

Certain heterocyclic aromatic nitrogen compounds, when added to conventional electroless copper plating baths in small amounts, stabilize these baths against spontaneous decomposition into metallic copper. A particular advantage of these stabilizing agents is that they do not adversely affect the plating rate. Indeed, with some compounds the plating rate is significantly increased by the addition of the stabilizing agent.

3,708,330

PRODUCING CONTAINER WITH FOAM INTERIOR

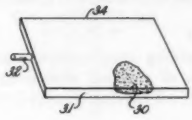
George B. Harr, Pasadena, Calif., assignor to The Firestone Tire and Rubber Company, Akron, Ohio

Continuation of application Ser. No. 836,190, Apr. 30, 1969, and a division of application Ser. No. 840,580, May 22, 1969, which are divisions of application Ser. No. 601,818, Nov. 28, 1966, which is a continuation of application Ser. No. 563,774, July 19, 1966, which is a continuation-in-part of application Ser. No. 480,634, Aug. 18, 1965, which in turn is a continuation-in-part of application Ser. No. 413,790, Nov. 25, 1964, all now abandoned. This application Jan. 28, 1971, Ser. No. 110,595

Int. Cl. B44d *1/09;* B65d *25/14, 25/34*

U.S. Cl. 117—94 **4 Claims**

A container, and more particularly a fuel cell is formed by foaming an integument from settable plastic, e.g. polyurethane, over open-cell skinless cellular foam



with only the branched surface terminations of the foam embedded in the integument.

3,708,331

COMPOSITION FOR SEALING CONTAINED STERILIZED FOODS

Arthur J. Leydon, Waltham, Mass.; Mannie Brenner, Cambridge, Mass., and Fred L. Chase, Arlington, Mass., assignors to W. R. Chase & Co., Cambridge, Mass.

Filed Nov. 13, 1970, Ser. No. 89,494

Int. Cl. B44d *1/08*

U.S. Cl. 117—95 **2 Claims**

A thermoplastic composition for high temperature short-time process in can sealing which comprises an elastometer dispersed in a volatile organic solvent system and includes a fossil resin to improve the sealing performance of the composition when exposed to temperatures of the order in excess of about 200°C.

3,708,332

SHOE STIFFENER

Addison W. Closson, Jr., Cambridge, Mass. (% Proctor Laminar Corp., 32 Calvin Road, Watertown, Mass. 02172)

No Drawing. Filed Sept. 10, 1969, Ser. No. 856,838

Int. Cl. C08j *1/40;* B32b *27/04, 27/08*

U.S. Cl. 117—122 H **2 Claims**

A process for making a novel stiffening element of the type comprising a resilient polymer and a porous substrate combined into an integral structure, said process comprising the steps of coating a fabric with an aqueous dispersion of the resilient polymer to achieve a superior bond of the polymer thereto and drying the dispersion to form an elastomeric coating. In the most advantageous embodiment of the invention, a pressure-sensitive adhesive is applied over the surface of the elastomer.

3,708,333

PROCESS FOR PRODUCING ON IMPREGNATED WATERLAID SHEET AND RESULTANT PRODUCT

Robert C. Carlson, Saint Paul, Minn., assignor to Minnesota Mining and Manufacturing Co., St. Paul, Minn.

Filed Oct. 8, 1970, Ser. No. 79,318

Int. Cl. B32b *27/12;* B44d *1/32*

U.S. Cl. 117—140 A **3 Claims**

A leatherlike sheet material having a low apparent density (high void volume), good internal bond strength, and a slow rate of water pickup is provided by forming a waterlaid sheet containing leather fiber, impregnating the waterlaid sheet with an uncured polyurethane, polyurethane-urea, or polyurea elastomeric resin system, and permitting the uncured resin system to cure in situ. The uncured resin system should be mixed together and quickly brought into contact with the waterlaid sheet, so that little, if any, curing occurs prior to the impregnation step.

3,708,334

METHOD OF MARKING THE SKIN OR FUR OF ANIMALS

Jay A. Firth, Overland Park, Kans., and John A. Frump, Terre Haute, Ind., assignors to Commercial Solvents Corp.

Division of Ser. No. 845,559, July 28, 1969, abandoned. This application March 22, 1971, Ser. No. 126,872
Int. Cl. D06m *3/02*
U.S. Cl. 117—141 3 Claims

A durable marking composition especially suitable for marking the skin of animals, consisting essentially of 4,4-bis(hydroxymethyl)-2-alkyl or alkenyl-2-oxazoline and a color body.

3,708,335

ELECTRICALLY CONDUCTIVE FILAMENT

Shigeru Fujiwara, Kenji Nagae, and Tomomi Okuhashi, Tokyo, Japan, assignors to Teijin Limited, Osaka, Japan

No Drawing. Filed Mar. 8, 1971, Ser. No. 122,170
Claims priority, application Japan, Mar. 10, 1970, 45/20,327
Int. Cl. C09c *1/44*
U.S. Cl. 117—226 13 Claims

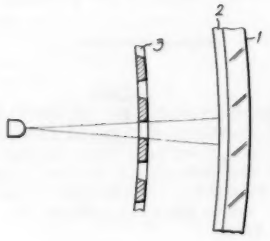
An electrically conductive filament having durable antistatic properties under various processing and service conditions, which comprises a synthetic organic filament of 5–50 denier and an electrically conductive coating layer therearound, which coating comprises a polymeric binder matrix of acrylonitrile/butadiene copolymer, a phenolic resin and a finely divided electrically conductive carbon black or silver dispersed in said matrix, characterized in that said coating layer has been after-treated by applying thereto a polyisocyanate compound of low molecular weight, such as 4,4′-diphenylmethane diisocyanate, in an amount of 0.3 to 20% by weight based on the weight of the electrically conductive filament after the treatment, and curing it by heating.

3,708,336

METHOD OF MAKING COLOR PHOSPHOR SCREEN OF COLOR PICTURE TUBE

Masahiro Nishizawa, Masashi Wakabayashi, and Kosuke Nishino, Tokyo, Japan, assignors to Nippon Columbia Kabushikikaisha (Nippon Columbia Co., Ltd.), Tokyo, Japan

Filed Oct. 13, 1970, Ser. No. 80,293
Claims priority, application Japan, Oct. 29, 1969, 44/86,064; Nov. 1, 1969, 44/87,745
Int. Cl. B44d *1/50*
U.S. Cl. 117—33.5 CM 8 Claims



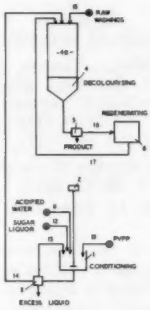
A method of making a color phosphor screen of a color picture tube in which a photosensitive material is coated on an inner surface of a faceplate of a color picture tube; the photosensitive material is exposed through a shadow mask; the exposed photosensitive material is developed to form temporary dots on the inner surface of the faceplate; the temporary dots are treated with a contracting agent in damped condition; the contracted dots are hardened; a block material is coated on the inner surface of the faceplate having formed thereon the hardened temporary dots; the temporary dots and the black material are removed to form void areas; and predetermined color phosphors are deposited on the void areas.

3,708,337

CONTINUOUS PROCESS FOR RECOLOURIZING LIQUORS

Peter Smith and Herve Suzor, East Roseville, New South Wales, Australia, assignors to The Colonial Sugar Refining Company Limited, Sydney, New South Wales, Australia

Filed Jan. 25, 1971, Ser. No. 109,428
Int. Cl. C13d *3/12*
U.S. Cl. 127—46 R 6 Claims



A continuous column process for decolourizing an aqueous sugar liquor, in which the sugar liquor is fed downwardly through a floating bed of a flocculent polyamide. The polyamide is assisted initially to float in the liquor by being conditioned in an aqueous liquid, such as water. It has been found that a rate of liquor flow can be regulated such that (i) at least a portion of the bed is maintained generally in suspension, but (ii) particles of spent polyamide are carried away in the colour-reduced effluent (product). The particles of spent polyamide are separated from the effluent outside the column, and the polyamide is then regenerated and returned as required to the top of the floating bed. The polyamides used are water-insoluble, water-swellable and pulverulent (typically, nylon-66 and poly-N-vinyl polypyrrolidones), and cannot be used conventionally in a packed column fitted with a basal retaining plate. The invention is particularly applicable to decolourizing the high density sugar liquors, such as raw washings.

3,708,338

THE NEGATIVE ELECTRODES FOR A DRY-CHARGED LEAD ACID STORAGE BATTERY

Otto Jache, Thiergarten, Budingn/Hessen, Germany

Division of Ser. No. 70,245, Sept. 9, 1970, Pat. No. 3,658,594. This application Dec. 27, 1971, Ser. No. 212,259
Int. Cl. H01m *35/00*
U.S. Cl. 136—27 5 Claims

A lead-acid storage battery of the dry-charged type is disclosed in which the dry-charged negative electrodes are provided with a coating of a silicone containing anion-active emulsifying agent.

3,708,339
POTASSIUM HYDROXIDE WAFERS AND PROCESS FOR THEIR PREPARATION

Edward K. Fujimoto, Seabrook, N.J., and Walter R. Buckman and Edmund J. Grezlikowski, Wilmington, Del., assignors to Allied Chemical Corporation, New York, N.Y.

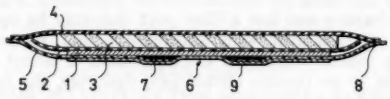
Filed Sept. 8, 1970, Ser. No. 70,296
Int. Cl. C01d *1/00*; H01m *29/02*
U.S. Cl. 136—153 **27 Claims**

Potassium hydroxide wafers having a thickness of from 1/16 inch to about 1/8 inch in which the weight percent of potassium hydroxide is from about 80–87.5, the balance being essentially water, may be prepared by pouring molten potassium hydroxide, having the indicated weight percentage, into a mold defining a cavity the thickness of which is from about 1/16 inch to about 1/8 inch, allowing the potassium hydroxide to solidify in the mold, and removing the potassium hydroxide wafers thus formed from the mold. The potassium hydroxide wafers have utility as the electrolyte in zinc-air battery systems.

3,708,340
GALVANIC BATTERY WHEREIN EACH CELL IS ENCLOSED IN A COVER COMPRISING ELECTRICALLY INSULATING AND ELECTRICALLY CONDUCTIVE PLASTIC FOILS

Pentti Juuse Tamminen, Otsolahdentie 6, Tapiola, Finland

Filed June 28, 1971, Ser. No. 157,350
Claims priority, application Finland, June 29, 1970, 1,819/70
Int. Cl. H01m *21/00*
U.S. Cl. 136—111 **5 Claims**



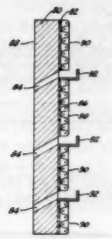
A galvanic battery is described wherein the cell or each cell is enclosed in a cover comprising two plastic foils tightly jointed to each other, one of said foils consisting of an electrically insulating plastic material and the other consisting of an electrically conductive plastic material, and only the electrically insulating plastic foil being provided with at least one opening for establishing contact to one electrode of the cell.

3,708,341
ELECTRODE WITH PASSAGEWAYS AND WEIR-SHAPED ELECTROLYTE COLLECTING MEANS

Royce E. Biddick, Edina, Minn., assignor to Union Oil Company of California, Los Angeles, Calif.

Original application Nov. 4, 1964, Ser. No. 408,909, now Patent No. 3,475,222, dated Oct. 28, 1969. Divided and this application July 26, 1968, Ser. No. 840,540
Int. Cl. H01m *13/00, 27/04*
U.S. Cl. 136—120 FC **2 Claims**

1. A porous fuel cell electrode having a gas surface and an electrolyte surface, a plurality of passageways therethrough in fluid communication between said gas surface and said electrolyte surface, a coating of hydrophobic material on said gas surface, a plurality of fluid collecting means corresponding with said passageways for collecting droplets of electrolyte formed on said gas surface, for channeling the accumulated electrolyte into said passageways and returning said electrolyte to said electrolyte surface of said electrode, said fluid collecting means

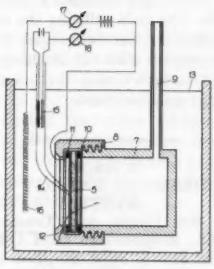


being weir-shaped semi-conduits on said electrode passageway to form a static head of accumulated fluid.

3,708,342
HYDROGEN ELECTRODES FOR FUEL CELLS

Horst Binder, Petterweil, Taunus, Wolfgang H. Kuhn, Frankfurt am Main-Griesheim, Werner Lindner, Niederhochstadt, Taunus, and Gerd Sandstede, Frankfurt am Main, Germany, assignors to Batelle-Institute e.v., Frankfurt am Main, Germany

Filed Jan. 16, 1969, Ser. No. 791,618
Claims priority, application Germany, Jan. 18, 1968, P 16 71 722.9
Int. Cl. H01m *13/02*
U.S. Cl. 136—121 **3 Claims**



Porous electrodes for fuel cells which comprise tungsten carbide, electrically conductive activated carbon and thermoplastic polymer. A process for preparing such electrodes is also disclosed. The electrodes are particularly suitable as porous anodes in low-temperature fuel cells containing acidic electrolytes and utilizing hydrogen fuel.

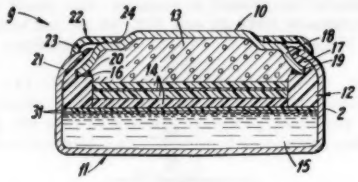
3,708,343
PRIMARY CELL CASE

Gerrard Walsh, Durham County, N.C., assignor to Timex Corporation, Waterbury, Conn.

Filed Jan. 18, 1971, Ser. No. 107,388
Int. Cl. H01m *1/02*
U.S. Cl. 136—133 **5 Claims**

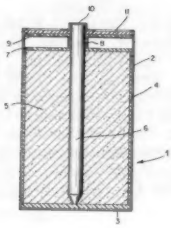
A primary cell of the button type having a case comprising a bottom can including a top open end, a top cap having a descending flange and a skirt at the end thereof and an annular grommet. The skirt portion of the top cap is adhered to the

grommet with an adhesive, such as an epoxy resin, and the open end of the bottom cap is swaged against the grommet to



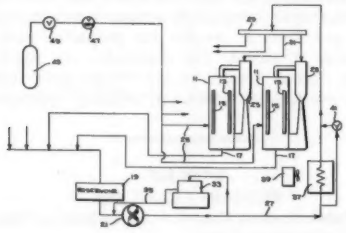
complete the seal. An auxiliary cap having downwardly extending end portions is mounted over the top cap.

3,708,344
ORGANIC DEPOLARIZER
Philip Bernstein, Yardley, Pa., assignor to ESB Incorporated
Filed Dec. 10, 1970, Ser. No. 96,856
Int. Cl. H01m *15/06*
U.S. Cl. 136—137 **14 Claims**



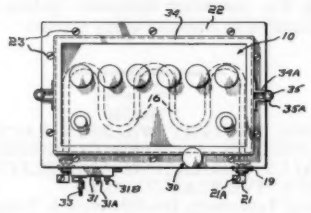
Heterocyclic thiones are provided as depolarizers in secondary voltaic cells. The cells utilizing the organic depolarizer offer good stability in the uncharged condition nd good recharge characteristics after full discharge. A typical cell is the Leclanche system wherein the manganese dioxide is replaced by 2-imidazolidinethione.

3,708,345
ELECTROCHEMICAL ENERGY CONVERSION SYSTEM
John F. Loos, San Diego, and Truman F. Unkle, Jr., Poway, Calif., assignors to Gulf Oil Corporation
Filed Jan. 8, 1970, Ser. No. 1,348
Int. Cl. H01m *31/02*
U.S. Cl. 136—160 **10 Claims**



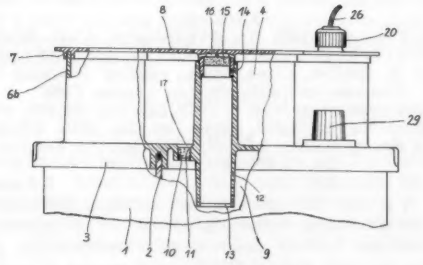
An energy conversion system utilizing a plurality of electrochemical cells employing the zinc-oxygen electrochemical couple and a circulating alkaline electrolyte which is pumped through the cells to remove the zinc oxide reaction products therefrom. A high electrolyte flow rate is achieved through each of the cells, which scours the zinc oxide reaction products from the zinc anodes, by providing a jet pump in association with each electrochemical cell unit. The individual jet pumps transform a relatively low flow rate of high pressure liquid electrolyte from a high pressure pump into a substantially higher circulation flow of low pressure electrolyte within each of the individual electrochemical cells.

3,708,346
STORAGE BATTERY HEATER AND COMBINED STORAGE BATTERY AND HEATER
David E. Nash, Sturbridge, Mass.
(P.O. Box 219, South Berwick, Maine 03908)
Filed June 17, 1971, Ser. No. 154,128
Int. Cl. H05b *1/02, 3/06*
U.S. Cl. 136—161 **9 Claims**



A heater for a storage battery is disclosed which may be an integral part of a storage battery but which is shown as a casing dimensioned to receive the battery with the battery supported therein in spaced relation thereto to provide a chamber jacketing the major portion of the battery including the bottom thereof. The casing is sealed to the battery and has a filler port that may be opened to fill the chamber with antifreeze liquid. Immersion heating means within the chamber have a circuit connectable to an outside circuit and, desirably, the heater circuit includes a thermostat.

3,708,347
DEVICE FOR REPLENISHING THE LIQUID IN A STORAGE BATTERY
Emil Blaich, Barienrode, Oskar Maier, Hildesheim, and Bodo Ziegler, Stuttgart-Botnang, Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany
Filed Aug. 13, 1970, Ser. No. 63,553
Claims priority, application Germany, Aug. 14, 1969, G 69 32 118.2
Int. Cl. H01m *7/00*
U.S. Cl. 136—162 **9 Claims**



A device for replenishing the liquid in a storage battery includes the detachable cover of the container of the battery, and a closed vessel above the cover containing

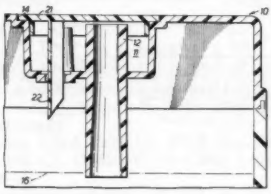
the liquid. Inlet means including a porous liquid-permeable body, and a gas outlet tube closed to the liquid, connect the vessel with the container.

3,708,348

TOPPING-UP ARRANGEMENTS FOR MULTI-CELL ELECTRIC BATTERIES

Roy Painter, Smallshaw, Ashton-under-Lyne, and Graham John Vaughan, Swinton, near Manchester, both of England, assignors to Electric Power Storage Limited, Manchester, England

Filed Aug. 21, 1970, Ser. No. 65,970
Int. Cl. H01m *1/02*
U.S. Cl. 136—170 **13 Claims**



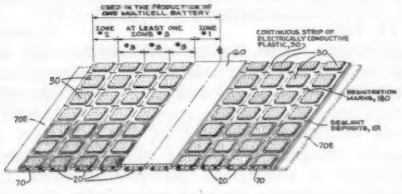
A topping-up arrangement for multi-cell electric storage battery comprises a vent extending down into each cell to a point below the desired liquid level, and a small filling opening into each cell from a common filling trough, of such size that a meniscus will form. A removable common cover for the trough carries a number of probes, one projecting down through each filling opening the probe being so shaped as to permit air to escape while liquid drains into the cell.

3,708,349

METHOD OF CONSTRUCTING MULTICELL BATTERIES

William R. Macaulay, Madison; John M. Bilhorn, Edgerton, and Kent V. Anderson, Madison, all of Wis., assignors to ESB Incorporated

Filed June 25, 1971, Ser. No. 156,686
Int. Cl. H01m *23/04*
U.S. Cl. 136—175 **25 Claims**



A method of constructing multicell batteries includes placing intermittent deposits of electrodes along Zones No. 1, No. 2 and No. 3. Zone No. 1 is defined as a composite of a first continuous strip of electrically conductive plastic and a second continuous strip of electrically conductive material; intermittent deposits of positive electrodes are placed on the plastic side of Zone No. 1. Zone No. 2 is defined as a composite of a first continuous strip of electrically conductive plastic and a second continuous strip of electrically conductive material; intermittent deposits of negative electrodes are placed on the plastic side of Zone No. 2. Zone No. 3 is defined as a continuous strip of electrically conductive plastic; intermittent deposits of positive and negative electrodes are placed along Zone No. 3, each deposit of positive electrode being on the other side of a Zone No. 3 from and substantially opposite a deposit of negative electrodes. The continuous Zones with the electrodes deposited thereon are collated so that at least one Zone No. 3 is between a Zone No. 1 and a Zone No. 2, so that the electrically conductive plastics in Zone No. 1 and No. 2 are facing the inside of the collation, and so that a deposit of positive electrode on one Zone is opposite a deposit of negative electrode on an adjacent Zone. A separator and electrolyte is placed between each adjacent pair of electrodes in the collation, after which the Zones are sealed together around and between the electrode deposits.

Zones No. 1, No. 2 and No. 3 may be structurally connected portions of a continuous web while the electrodes are being applied, in which case the web is cut to structurally disconnect the Zones after electrode application. Alternatively, Zones No. 1, No. 2 and No. 3 may be structurally unconnected during electrode application.

The second continuous strips of electrically conductive material which are members of the composites in Zones No. 1 and No. 2 may be: foils of metals such as steel, aluminum, lead or zinc; metalized deposits such as flame strays, vapor deposits, sputtering, and others; or films impregnated with metallic or other conductive particles. One of these second continuous strips may be wider than and extend beyond the edge of the conductive plastic strip to which it is joined: the extension is wrapped around the edge of the collation and overlaid above the other composite Zone on the other side of the collation to produce a battery having both terminals on one face.

3,708,350

COATED METAL AND METHOD

Alexander W. Kennedy, Chardon, and Irving Malkin, University Heights, Ohio, assignors to Diamond Shamrock Corporation, Cleveland, Ohio

No Drawing. Continuation-in-part of abandoned application Ser. No. 788,334, Dec. 31, 1968. This application Dec. 10, 1970, Ser. No. 96,968
Int. Cl. C23f *7/26*
U.S. Cl. 148—6.2 **9 Claims**

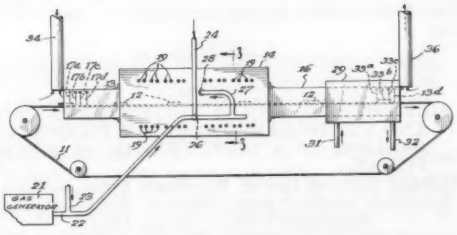
A composite coating provides enhanced corrosion protection for metal substrates and can maintain substrate electroconductivity, e.g., for weldability. The undercoating on the surface of the substrate is a residue obtained from curing an applied corrosion-resistant, hexavalent-chromium-containing liquid composition containing chromic acid. The coating over such residue results from curing an applied topcoat composition comprising an electrically conductive pigment in a vehicle.

3,708,351

BLACKENING PROCESS

Nick S. Dallas, Oak Park, and Richard W. Uzumecki, Bensenville, Ill., assignors to Tubal Industries, Inc., Elk Grove Village, Ill.

Filed Feb. 2, 1970, Ser. No. 7,505
Int. Cl. C23c *17/00*
U.S. Cl. 148—6.35 **6 Claims**



Television tube aperture masks and shadow masks made of steel are blackened with an adherent oxide coating by heating the masks in an oxidizing atmosphere made

principally of combustion gases. The composition of the oxidizing atmosphere is controlled to provide a minor amount of free oxygen and a minor amount of live steam.

3,708,352

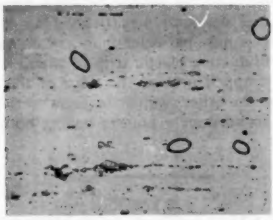
STRAIN HARDENED ALUMINUM-MAGNESIUM ALLOYS

Robert H. Brown, Natrona Heights, Melvin H. Brown, Leechburg, and Murray Byron Shumaker, Lower Burrell, Pa., assignors to Aluminum Company of America, Pittsburgh, Pa.

Continuation-in-part of application Ser. No. 755,315, Aug. 26, 1968. This application June 14, 1971, Ser. No. 152,688

Int. Cl. C22f *1/04*

U.S. Cl. 148—11.5 A **14 Claims**



Aluminum alloy plate containing 4.4 to 10% magnesium and strain hardened to improve its strength to a level of at least 40% greater than the strength in the annealed state is imparted with substantial freedom from susceptibility of exfoliation corrosion. The process includes rolling at minimum temperatures of about 420° to 650° F. depending on the amount of magnesium present, to produce the strain hardened product and cooling at specially controlled rates.

3,708,353

PROCESSING FOR IRON-BASE ALLOY

Roy L. Athey, North Palm Beach, Fla., assignor to United Aircraft Corporation, East Hartford, Conn.

Filed Aug. 5, 1971, Ser. No. 169,534

Int. Cl. C22c *39/20, 41/02;* **C21d** *7/14*

U.S. Cl. 148—12.3 **3 Claims**

An iron-base alloy of the nominal composition, by weight, of 15 percent chromium, 26 percent nickel, 1.3 percent molybdenum, 2.1 percent titanium, 0.3 percent vanadium, balance iron, is provided to provide a grain size of ASTM 5 or finer when measured at 1,000X magnification (normal ASTM grain size readings are at 100X magnification) with an ultimate tensile strength at room temperature of about 175,000 p.s.i.

3,708,354

METHOD AND APPARATUS FOR MEASURING AND CONTROLLING THE CONTINUOUS ANNEALING OF A LONG LENGTH OF METAL TUBING

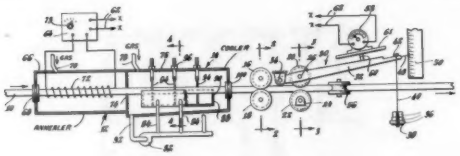
Douglas Whitman Rowell, Woodbury, Conn., assignor to Anaconda American Brass Company, Waterbury, Conn.

Filed June 9, 1971, Ser. No. 151,257

Int. Cl. C21d *9/08;* **G01b** *5/30*

U.S. Cl. 148—128 **19 Claims**

Method and apparatus for measuring and controlling the continuous annealing of a long length of metal tubing by passing the annealed tubing between sensing rolls to apply predetermined force urging the rolls toward each other to change the wall shape as a whole as distinguished from a localized indentation or deformation. The extent of non-localized change in shape of the tubing wall increases with the degree of anneal, thereby providing a measurement of the anneal and producing an indication for use in controlling the annealer heat. The change of the tubing shape from generally circular to oval is made substantially proportional to the degree of anneal throughout the range of operation by providing measuring rolls including secondary support for the tubing by partially embracing opposite sides of the tubing with shoulders sloping tangentially away from contact. In the preferred



arrangement for providing uniform anneal along a length of copper tubing, a lever system which applies the force also serves to multiply the roll axis displacement as indicated by the multipled movement occurring at the outer end of the lever, and the heat energy is fed at a high rate such that the dwell time of each increment of tubing in the annealer is a brief period, the hot tube is quickly cooled, the sensing of the anneal occurs soon after completion of anneal for providing accurate control of the annealing at a fast production rate, and the maximum change in tubing diameter at the sensing roll faces in the direction of the applied force is less than 25% for copper tubing in which the wall thickness is less than one-tenth of the O.D.

3,708,355

CASTABLE CARBONITRIDE ALLOYS

Erwin Rudy, Beaverton, Oreg., assignor to Teledyne Industries, Inc., Los Angeles, Calif.

No Drawing. Filed Nov. 3, 1970, Ser. No. 86,622

Int. Cl. C22c *15/00, 31/04*

U.S. Cl. 148—32 **9 Claims**

A refractory metal bonded carbonitride alloy is disclosed for use as cutting tools and in other applications where hardness and abrasion resistance are required. The microstructure of the alloys consist of fine-grained, mechanical mixtures of carbonitride and refractory metal alloys, the fine-grained structure being obtained through solidification of eutectic or near-eutectic melts. In the preferred embodiment the hard carbonitride phase has titanium as its base metal, while the binder phase is a tungsten-rich metal alloy.

3,708,356

UREA-MODIFIED AMMONIUM NITRATE-FUEL OIL EXPLOSIVES

Charles M. Mason, and David R. Forshey, both of Bethel Park, Pa., assignors to The United States of America as represented by the Secretary of the Interior

Filed Dec. 10, 1970, Ser. No. 97,026

Int. Cl. C06b *1/04*

U.S. Cl. 149—2 **1 Claim**

An ANFO explosive which is modified by the presence of small amounts of urea so that the explosive will not adversely react with pyrite in pyrite-bearing mines.

3,708,357

OXIDIZERS WITH IMPROVED THERMAL STABILITY AND METHOD OF MAKING SAME

Scott I. Morrow, Morris Plains, N.J., assignor to The United States of America as represented by the Secretary of the Army

Filed April 21, 1971, Ser. No. 135,977
Int. Cl. C06b *1/04*
U.S. Cl. 149—2 8 Claims

Oxidizing compounds are provided which have improved thermal stability and which are particularly useful in explosive and propellant compositions. Such oxidizers are produced by making solid solutions of the oxidizer with at least one other compound. The solid solutions of particular interest for the purpose of this invention are ammonium perchlorate (NH_4ClO_4) and potassium perchlorate ($KClO_4$), or ammonium perchlorate and ammonium nitrate (NH_4NO_3).

3,708,358

PROPELLANT BINDER AND SYNTHESIS

Concetto T. Camilli, Morristown, and Lawrence J. Engel, Dunellen, N.J., assignors to Esso Research and Engineering Company

No Drawing. Filed Feb. 28, 1963, Ser. No. 262,295
Int. Cl. C06b *19/02;* C06d *5/06*
U.S. Cl. 149—7 7 Claims

1. A compatible mixture of NR_2-containing acrylate polymer coating on nitronium perchlorate, and NF_2-containing acrylate being crosslinked so that it is insoluble in acetonitrile.

3,708,359

HYDRAZINIUM NITROFORMATE PROPELLANT WITH SATURATED POLYMERIC HYDROCARBON BINDER

George M. Low, Deputy Administrator of the National Aeronautics and Space Administration with respect to an invention of, and Vernon E. Haury, Santa Susana, Calif.

Filed Sept. 23, 1970, Ser. No. 74,862
Int. Cl. C06d *5/06*
U.S. Cl. 149—19 8 Claims

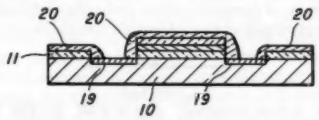
A solid propellant composition containing hydrazinium nitroformate as an oxidizer, utilizing a saturated polymeric hydrocarbon binder and a polyisocyanate as a curing agent to prevent deterioration of the propellant.

3,708,360

SELF-ALIGNED GATE FIELD EFFECT TRANSISTOR WITH SCHOTTKY BARRIER DRAIN AND SOURCE

Robert Henry Wakefield, Jr., and James Alan Cunningham, Houston, Tex., and Myint Hswe, Shrewsbury, Mass., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed June 9, 1970, Ser. No. 44,834
Int. Cl. B23b *31/14*
U.S. Cl. 156—3 5 Claims



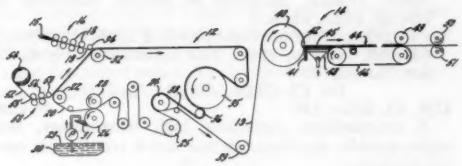
A low parasitic capacitance field effect transistor is fabricated by the utilization of a self-aligning gate technique. A metal gate is formed and then, employing the gate as a mask, low temperature Schottky barrier source and drain junctions are formed. The technique is particularly useful in the fabrication of the field effect transistor as an element of a large integrated circuit where many such alignments must be made simultaneously.

3,708,361

METHOD OF MAKING ELASTIC HIGH-LOFT NONWOVEN FABRIC WITH IMPROVED CROSS DIRECTIONAL STRENGTH

Robert J. Stumpf, Appleton, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.

Filed Nov. 16, 1970, Ser. No. 89,860
Int. Cl. B32b *5/00*
U.S. Cl. 156—72 14 Claims



An elastic, high-loft, nonwoven fabric having improved cross-directional strength, such fabric including a discontinuous backing layer of adhesive and a multiplicity of heat-settable elements as well as filaments looped outwardly from the backing, and a method of making the fabric by embedding at least two webs in an open pattern of adhesive, with one web being comprised of a plurality of flexible elements extending longitudinally of the web and a second web being comprised of a plurality of unbonded randomly oriented continuous filaments. The adhesive is then partially consolidated in a backing layer while the elements and filaments are looped outwardly from the backing and the elements are heat-set while minimizing bonding in the partially consolidated adhesive backing.

3,708,362

TREATMENT OF PLASTICS MATERIALS

John J. Winchcombe; John P. G. Windsor, and Ian Biggs, all of Erdington, Birmingham 24, England, assignors to Dunlop Holding Limited, Birmingham, England

Filed June 28, 1968, Ser. No. 741,051
Claims priority, application Great Britain, July 6, 1967, 31,241/67
Int. Cl. B32b *31/20, 31/26*
U.S. Cl. 156—82 13 Claims

The invention provides an improved method and apparatus for the reticulation of cellular material such as polyurethane foam, by means of which a continuous sheet of foam can be reticulated in a continuous fashion. The sheet is held between platens, the air in the cells of the sheet is replaced by a combustible gaseous medium which is then ignited resulting in reticulation of the foam. The sheet can then be advanced through the platens and an adjacent unreticulated portion then subjected to a repetition of the method.

The method and apparatus can also be used in a similar way for bonding together into a coherent fibrous body a mass of strands of thermoplastic material such as polypropylene fibers.

3,708,363

PROCESS FOR PRODUCING SYNTHETIC FIBER TEXTILE MATERIALS IN PIECES OR IN STRIPS

Michele Bettoni, Isso-Montecolino, Brescia, Italy

Filed Apr. 15, 1970, Ser. No. 28,813
Int. Cl. B32b *31/12*
U.S. Cl. 156—148 4 Claims

Process for making woven, non-woven and skeins articles of synthetic fibers in pieces or in strips, which are both wear- and tear-resistant, temperature-resistant and resistant to printing by fusion. These characteristics are obtained by temporarily introducing into the textile material, during manufacture or immediately thereafter, a plurality of hot needles to cause melting and welding of the fibers at the points of contact. A number of needles may

be removed and sections of the textile material may be replaced by others, so as to obtain multi-colored patterns for tiles and similar decorative articles.

3,708,364

NON-IONIC SURFACE-ACTIVE AGENTS DERIVED FROM FATTY CHAIN DIOLS AND METHOD OF PREPARING SAME

Gregoire Kalopissis, Paris, and Guy Vanlerberghe, Mitry-Mory, France, assignors to Société Anonyme dite: l'Oreal, Paris, France

No Drawing. Continuation-in-part of application Ser. No. 652,005, July 10, 1967. This application July 6, 1970, Ser. No. 52,740

Int. Cl. C11d *1/66, 3/075, 7/06*

U.S. Cl. 252—156 9 Claims

A composition containing high temperature, stable, water soluble, non-ionic surface active compounds having the formula:

$$R-\underset{\displaystyle O-[C_2H_3O-X]_q-H}{\underset{|}{CH}}-CH_2-O-[C_2H_3O-X]_p-H$$

in which R represents a lipophilic group having 8 to 22 carbon atoms, which may include hydroxyl groups and intermediate groups comprising hetero atoms, such as O, S and N, X represents a CH_2OH or

$$CH_2O-CH_2-CHOH-CH_2OH$$

group, p and q are numbers equal to or less than 10, the sum $(p+q)$ being equal to or greater than 1 but no greater than 10.

3,708,365

PRODUCTION OF CONTINUOUS FILAMENT, NON-WOVEN WEBS

George Edward Barlow, Harrogate, England, assignor to Imperial Chemical Industries Limited, London, England

No Drawing. Filed Feb. 12, 1968, Ser. No. 704,543

Claims priority, application Great Britain, Feb. 17, 1967, 7,743/67

Int. Cl. D04h *3/03*

U.S. Cl. 156—181 1 Claim

A method for the production of continuous filament, non-woven webs, comprising directing downwardly towards a moving receiving surface at least two curtains of continuous diverging filaments, in which the filaments are separated and substantially uniformly distributed across each curtain, influencing the direction of movement of the filaments of each curtain so that they cease to diverge and become substantially parallel in the vicinity of the receiving surface, the filamentary curtains being arranged in such a manner that neighbouring edges of the filamentary curtains are in contact at the receiving surface, overfeeding the filamentary curtains onto the receiving surface to form a unitary non-woven web having a width dimension which is substantially equal to the sum of the widths of the webs which would be formed by the individual filamentary curtains and subjecting the unitary non-woven web to a heat bonding process to bond together the filaments.

3,708,366

METHOD OF PRODUCING ABSORBENT PAPER TOWELING MATERIAL

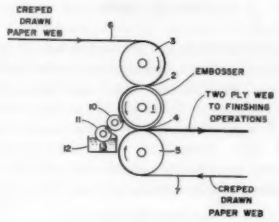
Harold F. Donnelly, Appleton, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.

Original application Nov. 9, 1967, Ser. No. 681,858. Divided and this application Nov. 25, 1970, Ser. No. 92,569

Int. Cl. B31f *1/00;* B32b *3/30*

U.S. Cl. 156—209 2 Claims

A multi-ply and two-sided paper toweling in which one ply is more severely embossed than other, the plies being preferably adhesively attached to facilitate cutting, assembling and the like without ply separation. The toweling has one relatively rough and one relatively smooth outer side. A first toweling ply having the smooth outer side is embossed in successive rolling pressure nips and adhesive may be applied to embossment peaks between pressure nips; the second toweling ply having the more roughened outer side is preferably embossed and simul-



taneously adhesively united with the first ply in the second of the embossing nips. The latter of the embossing nips is preferably, although not necessarily, a lower pressure nip than is the first, usually just sufficient to secure adhesion. Such nip may be formed by the cooperation of a steel configurated roll with a backing roll of resilient material such as rubber or a fine bristle brush.

3,708,367

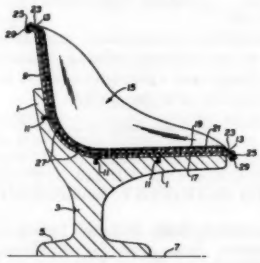
REPLACABLE SEAT INSERT AND PROCESS OF MAKING

Bernard Carrington Grant, Sylvania, and John F. Reilly, Toledo, both of Ohio, assignors to The General Tire and Rubber Company

Division of Ser. No. 63,371, Aug. 13, 1970, Pat. No. 3,647,260. This application May 3, 1971, Ser. No. 139,860

Int. Cl. B32b *31/00;* B29c *17/00*

U.S. Cl. 156—267 4 Claims



This invention concerns a replaceable insert for flare-edged, fully supported type chairs that combines the features of a rigid yet flexible base, a cushion, a nonwrinkling, nontearable cover, and resilient edge clamping means in one integral unit and to a novel method of making the insert. This seat insert is characterized by low manufacture and material costs as well as the absence of metal fasteners and other adjustable implements thus eliminating special installation skills and tools.

3,708,368

ARTICLE PROCESSING PROCESS WITH FEEDER SHUTTLE DISCONNECT

Donald W. Watson, Arlington Heights, Ill., assignor to Xerox Corporation, Rochester, N.Y.

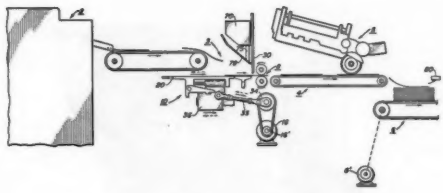
Original application Nov. 2, 1968, Ser. No. 774,957, now Patent No. 3,614,088. Divided and this application Jan. 18, 1971, Ser. No. 107,532

Int. Cl. B65c *1/02*

U.S. Cl. 156—300 2 Claims

A driving apparatus for shuttle type article feeders, the apparatus including a latch mechanism adapted to

couple the shuttle with a reciprocating driving element, abutment means selectively interposed in the path of movement of the latch mechanism and contactable with an operating arm of the latch mechanism to cause release



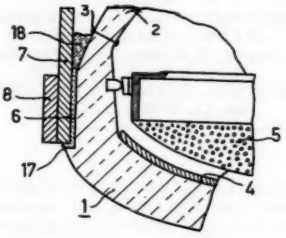
of the latch mechanism and uncoupling of the shuttle, means to restrain the shuttle against movement when uncoupled, and control means limiting uncoupling of the shuttle to a predetermined shuttle operating position.

3,708,369

METHOD OF PROVIDING AN ANTI-IMPLOSION CLAMPING BAND AROUND THE ENVELOPE OF A PICTURE TUBE

Hendrik Bongenaar and Theodorus Cornelis Gerardus Doreleijers, Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Apr. 14, 1969, Ser. No. 815,579
Claims priority, application Netherlands, Apr. 13, 1968, 6805299
Int. Cl. C09j *5/00*
U.S. Cl. 156—322 **5 Claims**



A method for providing an anti-implosion clamping band around the envelope of a television picture tube. The band comprising a frame having an aperture shaped in accordance with but smaller than the cross-sectional area of the envelope is heated without simultaneously heating the envelope to a temperature elongating the frame and enlarging the aperture of the frame to a value greater than the cross-sectional area of the envelope. In order to prevent cracking when the heated frame is positioned on the cold envelope, the surface of the tube to be clamped is covered with a heat insulating layer for example, of polyvinyl acetate or an epoxy resin. After the heated frame is positioned on the tube over the heat insulating layer and allowed to cool in this position to stress the material of the frame beyond its yield point, the space existing between the band and the envelope is filled with an adhesive.

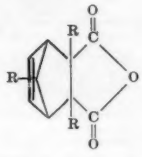
3,708,370

PROCESS FOR BONDING SURFACES WITH POLYIMIDE PREPOLYMERS

Hyman R. Lubowitz, Redondo Beach; Eugene A. Burns, Palos Verdes Estates, and John F. Jones, Torrance, all of Calif., assignors to TRW Inc., Redondo Beach, Calif.

Continuation of Ser. No. 703,905, Feb. 8, 1968, abandoned. This application Aug. 6, 1971, Ser. No. 169,868
Int. Cl. C09j *5/06*; C08g *20/00*
U.S. Cl. 156—331 **5 Claims**

This invention relates to a high-temperature adhesive composition and to a method using same which comprises low-molecular weight polyimide prepolymers obtained by coreacting a polyfunctional amine, a polyanhydride and a monoanhydride characterized by the formula:



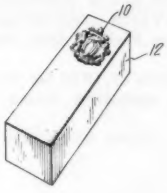
wherein R is selected from the group consisting of hydrogen and lower alkyl radicals.

3,708,371

MEDALLION APPLYING MACHINE

Gerald Alie, Laval des Rapides, Quebec, Canada, assignor to R. H. McConnell & Co. Ltd., Rose de Laval, Quebec, Canada

Filed Sept. 8, 1970, Ser. No. 70,380
Int. Cl. B65c *9/40*; B65g *15/00*
U.S. Cl. 156—363 **7 Claims**



A device for applying medallions to articles by selectively feeding medallions to a gripping mechanism which holds the medallion against the surface of a rotating wheel and carries the medallion through an adhesive applying station and into an applying station wherein the medallion is applied to the surface of the article.

3,708,372

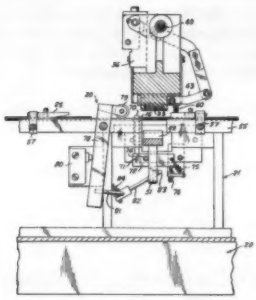
APPARATUS FOR PERFORMING INTERMITTENT OPERATIONS ON A WEB

Manuel H. Contreras, Dallas, Tex., assignor to Land Bros. Inc., Dallas, Tex.

Filed Aug. 25, 1970, Ser. No. 66,735
Int. Cl. B65c *5/04*
U.S. Cl. 156—351 **13 Claims**

A web, in the form of a stringer of slide fasteners, is made up of side-by-side web portions having spaced groups of slide fastener elements fixed to one edge, with the slide fastener elements being interlocked to form spaced slide fasteners separated by intervening spaces of uniform length where the slide fastener elements have been removed. The stringer then defines alternating portions of greater thickness, represented by the slide fastener

elements, and portions of lesser thickness represented by the spaces where the elements are removed. Electrically operated drive rollers pull the stringer along a supporting guide track, which guides the stringer past an operation station including an electrically operated device for performing the operation of placing a label on the stringer. A detector mechanism, responsive to the thickness of the stringer as it moves along the track, responds to the area of lesser thickness to stop the drive and start an operating



cycle of the label applying device. An interference finger is normally urged into engagement with the stringer to project between the web portions in the stringer spaces and engage the fastener elements to accurately position the stringer. The interference finger is removed and the drive of the stringer is restarted when the label applying operation is completed.

3,708,373

NON-METALLIC STRAP JOINTING APPARATUS, ESPECIALLY FOR HEAT SEALING STRAPS

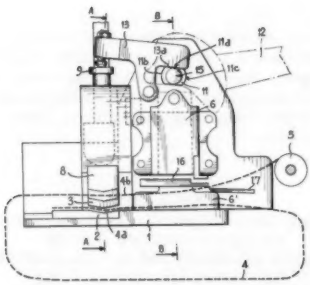
Camille Roquier-Vicat, Paris, 14 Siene, France, assignor to Imhanda A/G

Filed March 17, 1970, Ser. No. 29,372

Claims priority, application France, March 20, 1969, 6908096

Int. Cl. B29c *19/02*

U.S. Cl. 156—380 **7 Claims**



Jointing apparatus for securing together by heat sealing an initial strap portion and an end strap portion of a tensioned strap forming a loop, said apparatus comprising means for drawing the end strap portion in a direction tending to tension the strap, heat sealing means for sealing together said strap portions in a region where they are in overlapping condition, and locking means for locking said end strap portion near said region and before said region with respect to said direction.

3,708,374

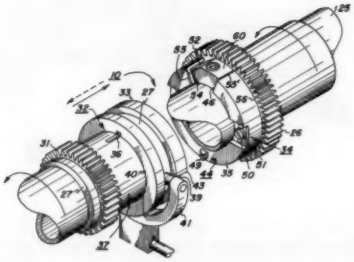
DRIVE CLUTCH FOR ARTICLE ADDRESSING MACHINE

Neil A. Polit, Cary, Ill., assignor to Xerox Corporation, Stamford, Conn.

Filed Feb. 25, 1971, Ser. No. 118,794

Int. Cl. F16d *3/68, 11/00*

U.S. Cl. 156—521 **3 Claims**



A clutch for use with an article addressing machine to permit certain of the addressing machine components to be coupled and uncoupled from the machine power source. The clutch includes a clutch collar rotatably coupled to a driven member and having a clutch face with at least one shoulder abutment, the collar being axially movable to bring the clutch face thereof into and out of clutching engagement with an opposing clutch face of a drive member to couple and uncouple the members together. The drive member has a drive pin projecting from the clutch face thereof for contact with the clutch shoulder abutment on the clutch collar on movement of the clutch collar forward into clutching position. The drive pin itself is carried on a clutch ring arranged for controlled displacement relative to the drive member through a resilient coupling means.

3,708,375

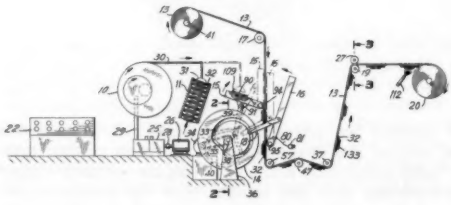
ADHESIVE BANDAGE AND APPARATUS FOR MANUFACTURE OF SAME

George E. Kistner, 31 Grafton St., Greenlawn, N.Y. 11740

Filed Mar. 10, 1969, Ser. No. 805,522

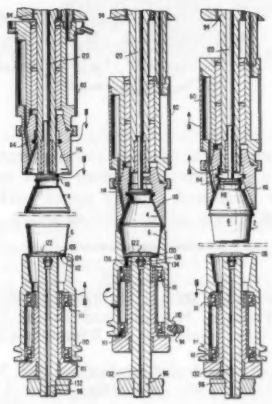
Int. Cl. B32b *31/20, 31/10*

U.S. Cl. 156—552 **2 Claims**



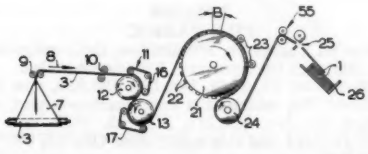
An apparatus for applying adhesive bandages to a continuous adhesive substrate from either a hopper or a continuous roll of bandages consisting of, in one embodiment, a first platen for applying bandages to the adhesive surface of the substrate and a second platen simultaneously activated with the first platen for applying heat to the substrate to activate its adhesive surface so that the bandage will be adhered thereto. In another embodiment, a moving knife slices individual bandages from a continuous roll so that a suction cup can press the bandages onto the adhesive surface of the substrate.

3,708,376
PEDESTAL ASSEMBLY
Robert J. Mistarz, Northbrook, and Albert B. Mojonnier, Sr., Chicago, Ill., assignors to Koehring Company, Milwaukee, Wis.
Filed June 17, 1971, Ser. No. 154,060
Int. Cl. B30b 3/04
U.S. Cl. 156—580 7 Claims



A pedestal assembly for accurately receiving and positively capturing a lower thermoplastic container half when it is being transferred into and rotated by a spin welding apparatus. The spin welding apparatus frictionally joins the lower container half to an upper container half to form a unitary container. The lower container half is received by the pedestal assembly from a rotating star wheel transfer device which slides the lower container half onto a stage portion of the assembly. The pedestal assembly having the container half thereon is then rotated in an opposite direction from that of the star wheel transfer device. The pedestal assembly including the stage portion has a dome-shaped upper surface which cooperates with a complementary recessed bottom of the lower container half. Vacuum means is applied through a central opening in the pedestal assembly for aiding in the positive capture of the lower container half.

3,708,377
MACHINE FOR MANUFACTURING HEAT-SEALED BAGS
Arno Finke, deceased, late of 454 Lengerich, Germany (by Adele Finke, executrix), and Frank Bosse, 453 Ibbenburen-Dorenthe, Germany, assignors to Maschinenfabrik Windmoeller & Holscher, Lengerich in Westfalen, Germany
Filed May 18, 1970, Ser. No. 38,002
Claims priority, application Germany, May 17, 1969, P 19 25 249.4
Int. Cl. B32h 31/20
U.S. Cl. 156—582 11 Claims

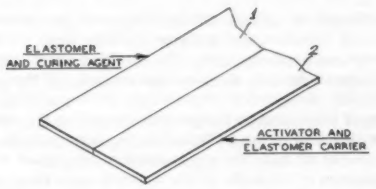


In a machine for mass-producing heat-sealed bags from continuous panels of heat-sealable material, a welding cylinder carrying a plurality of transverse welding ledges for forming weld seams transverse to the length of such panels, the cylinder carrying a plurality of fasteners for permitting the ledges to be mounted at different points along the circumference of the cylinder so that the spacing between adjacent ledges can be varied for the production of bags having different widths.

3,708,378
HEAT-SENSITIVE RETRO-REFLECTIVE IMAGING SHEET
Chi Fang Tung, Lincoln Township, Washington County, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Filed Nov. 27, 1970, Ser. No. 93,175
Int. Cl. B44f 1/00
U.S. Cl. 161—6 13 Claims

A heat-sensitive imaging sheet on which images that are retro-reflective may be rapidly defined. The sheet includes an imaging layer that is either normally transparent and converted to opaque in selected areas or normally opaque and converted to transparent in selected areas when heated in those areas. The imaging sheet also includes a retro-reflective layer disposed underneath the imaging layer so that light beamed against the sheet will be retro-reflected by the portions of the retro-reflective layer exposed through transparent areas of the imaging layer.

3,708,379
ELASTOMERIC TAPE
Theodore R. Flint, Jug Hollow Road, Valley Forge, Pa. 19481
Filed May 10, 1971, Ser. No. 141,664
Int. Cl. B32b 3/10
U.S. Cl. 161—36 15 Claims

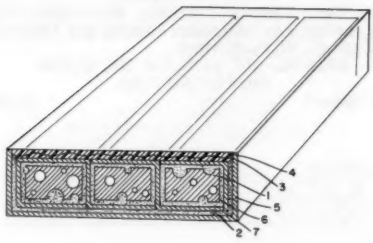


An elastomeric tape useful as an adhesive and/or a sealant comprised of a first band of uncured elastomer and a second band comprised of a curing agent for the elastomer of the first band dispersed in a carrier. Kneading together of substantially equal lengths of opposed portions of the first and second bands results in an elastomeric composition which is self-curing.

3,708,380
COMPOSITE SANDWICH PANEL TYPE CONSTRUCTION
Leonard M. Niebylski, Birmingham, Mich., assignor to Ethyl Corporation, New York, N.Y.
Filed June 21, 1971, Ser. No. 155,103
Int. Cl. B32b 3/02, 3/26, 15/00
U.S. Cl. 161—43 19 Claims

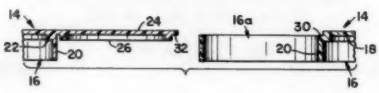
A composite sandwich panel type construction comprising two independent outer layers attached to opposite sides of foamed metal core, said core having Z-shaped reinforcing elements therein. A preferred panel construction has one outer layer extending around said foamed

metal core so as to substantially encase said core. Methods of fabricating such a panel construction (1) by casting said foamed aluminum around said reinforcing elements and subsequently attaching said outer layers to this integral metal foam/reinforcing element core structure, and (2) by first preparing said core from individual metal foam pieces which are then attached to performed Z-shaped reinforcing elements, said assembled core structure then having the outer layers attached thereto.



Compared to the composite sandwich panel construction having no Z-shaped reinforcing elements in said core, the present construction has substantially improved strength.

3,708,381
INTERCONNECTING MEANS FOR MODULAR CLOSED LOUVER PANEL SYSTEM
Robert A. D. Schwartz, 513 Independent St., Oakland, Calif.
Filed July 6, 1970, Ser. No. 52,656
Int. Cl. E04c *1/54*
U.S. Cl. 161—44 **4 Claims**

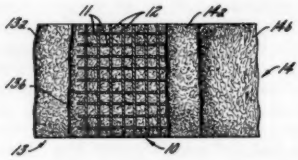


A translucent or transparent lighting panel incorporating adjacent cell members and a planar backing sheet covering one end of each of the cells. The backing sheet extends laterally beyond the cells along at least one edge of the panel, and preferably along two adjacent edges, and is provided with a plurality of short circular flanges extending from the sheet in the same direction as the cells and in the same pattern. The outer diameter of such flanges is substantially equal to the inner diameters of the cells. At the opposite edge or edges of the panel the sheet is omitted, leaving a row of open cells. A plurality of panels may then be interconnected by positioning a row of open cells on one panel over the sheet flanges on an adjacent panel.

3,708,382
HOOKED SURFACE OF A HOOK AND LOOP TYPE FASTENER
George H. Erb, Rutland, Vt., assignor to American Velcro, Inc., Manchester, N.H.
Original application July 15, 1969, Ser. No. 841,944. Divided and this application June 24, 1971, Ser. No. 156,455
Int. Cl. A44b *19/00*
U.S. Cl. 161—48 **1 Claim**

A method is disclosed for producing the hooked surface of a hook and loop type fastener by treating a starting fabric material having a pile of upstanding threads. The treatment comprises impregnating the threads and pile with a liquid plastic monomer having the capability of being converted by the application thereto of a suitable form of energy to a flexible solid, applying heat or other suitable form of energy to the underside of the starting material to set the lower portion of the threads into a relatively permanent and stiffened shape and then subjecting the other side of said starting material simultaneously to a pressure and heat or other suitable form of energy to bend and set the upper portions of the threads into the form of hooking elements.

3,708,383
NON-WOVEN ROLL TOWEL MATERIAL
Gordon D. Thomas, Neenah, and James T. Gresham, Appleton, Wis., assignors to Kimberly-Clark Corporation, Neenah, Wis.
Continuation of abandoned application Ser. No. 786,270, Dec. 23, 1968. This application June 4, 1971, Ser. No. 150,152
Int. Cl. B32b *5/12*
U.S. Cl. 161—57 **6 Claims**

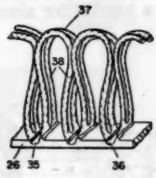


A non-woven roll towel material including a central layer of an open mesh crossed thread fabric comprising resilient warp threads extending in the machine direction, and substantially non-resilient fill threads extending in the transverse direction. The thread count is in the range of from about 1.5 to about 5 threads per inch in both directions. A multi-ply layer of cellulosic tissue is bonded to each of the opposite faces of the central layer, and the resulting composite material is heavily embossed. The preferred embossing technique comprises passing a web of the composite material through two or more embossing stations on the surface of a single embossing roll, and drawing the web away from the surface of the embossing roll between successive stations. This technique produces two or more embossments repeated continuously along the length of the composite material and out of register with each other.

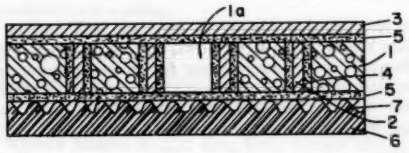
3,708,384
PILE FABRIC
Charles W. Carpenter, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.
Application Nov. 29, 1968, Ser. No. 780,038, now Patent No. 3,640,786, which is a continuation-in-part of application Ser. No. 731,221, May 22, 1968, now abandoned. Divided and this application Oct. 16, 1970, Ser. No. 81,596
Int. Cl. B32b *31/16*; B29c *27/08*; D04h *11/04*
U.S. Cl. 161—65 **6 Claims**

This invention relates to pile fabrics having the pile

and backing fusion bonded at the points of contact without loss of orientation in either the pile yarn or the backing, if an oriented backing is used, between the bond points.

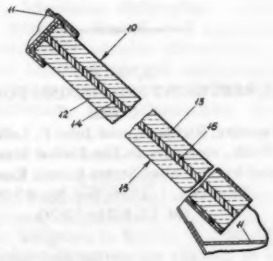


3,708,385
SANDWICH PANEL CONSTRUCTION
Peter A. Immethun, Ferndale, Mich., assignor to Ethyl Corporation, New York, N.Y.
Filed June 21, 1971, Ser. No. 155,101
Int. Cl. B32b 3/02, 3/26, 15/00
U.S. Cl. 161—69 20 Claims



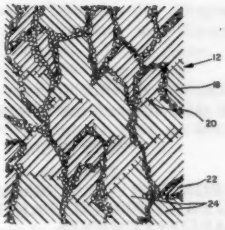
A sandwich panel construction comprising two independent outer layers attached to opposite sides of a foamed metal core, said core having reinforcing elements therein. Compared to sandwich panel construction having no reinforcing elements, the present construction has substantially improved resistance to deformation.

3,708,386
LAMINATED SAFETY FLOAT GLASS WINDSHIELDS
Harold M. Alexander, Paul T. Mattimoe, and John J. Hofmann, Toledo, Ohio, assignors to Libbey-Owens-Ford Company, Toledo, Ohio
Filed May 18, 1971, Ser. No. 144,488
Int. Cl. B32b 17/10; C03c 27/12
U.S. Cl. 161—165 8 Claims



An automotive windshield made up of two sheets of float glass approximately .100 of an inch thick, laminated together with an interlayer of at least .030 of an inch thick polyvinyl butyral, and with the "bath" or weak side of the float glass sheets exposed.

3,708,387
METALLIC MODIFIED PLASTIC COMPOSITIONS AND METHOD FOR THE PREPARATION THEREOF
Derek T. Turner, Bryn Mawr, and John E. Scheer, Philadelphia, Pa., assignors to Drexel University, Philadelphia, Pa.
Filed Sept. 11, 1970, Ser. No. 71,570
Int. Cl. B32b 5/16
U.S. Cl. 161—168 4 Claims



Metallic modified plastic compositions are provided which are comprised of a plastic matrix consisting of adhered plastic particles having an average size from 20–1000 microns and at least 5% by volume of a conductive metal. The metal is dispersed throughout the plastic matrix in conductive paths in the interstices between the adhered plastic particles of the matrix. The metal particles have an average particle size which is at least about 1/10 that of the plastic particles utilized to form the plastic matrix. The metallic modified plastics of this invention are especially useful as electrical conductors and are also useful in applications requiring plastics having high heat conductivity and mechanical strength.

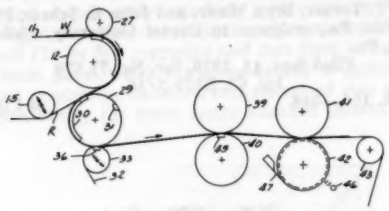
3,708,388
PROCESS OF LAMINATING USING VINYL ACETATE-ETHYLENE COPOLYMER LATEX ADHESIVE COMPOSITION
Martin K. Lindemann, and John G. Iacoviello, both of Somerville, N.J., assignors to Air Products and Chemicals, Inc., Allentown, Pa.
Continuation of Ser. No. 622,412, March 13, 1967, abandoned. This application May 6, 1970, Ser. No. 37,363
Int. Cl. C08f 15/02, 1/13; B32b 27/30
U.S. Cl. 161—247 11 Claims

Aqueous latices comprising vinyl acetate-ethylene copolymers are effective to laminate a film, web or other substrate to a second surface whereby the dried polymer film deposited by the latex unites the substrate to the second surface.

3,708,389
WEB PICKUP ARRANGEMENT FOR PAPERMAKING MACHINES
Kumar N. Maitra, Beloit, Wis., assignor to Beloit Corporation, Beloit, Wis.
Filed Dec. 2, 1968, Ser. No. 780,487
Int. Cl. D21f 2/00
U.S. Cl. 162—306 4 Claims

Web pickup arrangement for Fourdrinier type papermaking machine in which the forming wire changes its direction about a couch roll from the forming run thereof to a pickup run and travels angularly downwardly and rearwardly from the off-running side of the couch roll about a downwardly and rearwardly spaced contact roll, maintaining a tensioned downwardly facing pickup

run of the wire. The downwardly facing pickup run of the wire extends tangentially of a pickup roll picking



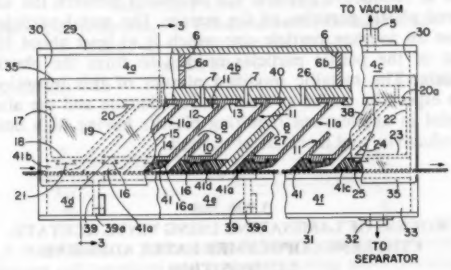
the web from the wire for transfer along a press felt through the press rolls of the machine.

3,708,390

SUCTION BOX FOR A PAPERMAKING MACHINE HAVING MULTIPLE COMPARTMENTS FORMED BY J-SHAPED ELEMENTS

Kenneth V. Krake, Neenah, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.

Filed Sept. 14, 1970, Ser. No. 71,999
Int. Cl. D21f *1/52*
U.S. Cl. 162—374 **8 Claims**



A suction box for the dewatering of felt carrying paper webs, the suction box being located above a traveling felt which carries a paper web on its underside, the box including multiple internal compartments formed by longitudinally spaced elements formed in a J-shape to create water-receiving compartments which conduct the accumulated water to lateral drain troughs which depend below the water-receiving compartments and below the traveling felt and web. Shoes which are attached to the bottoms of the J-shaped elements form a base for the suction box and allow for transverse passageways therebetween for liquid to be drawn upwardly by suction drawn through a suction port attached to the top wall of the suction box.

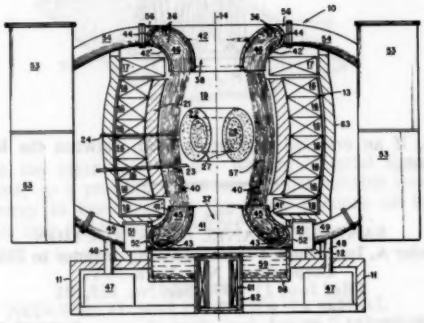
3,708,391

HIGH POWER DENSITY CONTROLLED FUSION REACTOR

Nicholas C. Christofilos, Livermore, Calif., assignor to the United States of America as represented by the United States Atomic Energy Commission

Filed Sept. 20, 1971, Ser. No. 181,914
Int. Cl. G21b *1/00*
U.S. Cl. 176—4 **9 Claims**

An Astron fusion reactor wherein a reaction plasma is contained in a magnetic potential well created by the interaction of the magnetic field generated by a cylindrical E-layer of relativistic charged particles rotating in an axisymmetric poloidal magnetic field. Molten lithium is pumped along an elongated annular region of the poloidal field surrounding the reaction plasma exterior of the E-layer to serve as a blanket for absorbing the neutron flux



from the reaction plasma to generate heat and to breed tritium therein. The heated lithium is circulated into heat exchangers to produce steam for power generation and is treated to recover tritrium for recycle or other use. Power densities several fold greater than with conventional blanket configurations may be utilized.

3,708,392

ISOTOPE ENRICHMENT PROCESS FOR LANTHANIDE AND ACTINIDE ELEMENTS

David O. Campbell, Oak Ridge, Tenn., assignor to The United States of America as represented by the United States Atomic Energy Commission

Filed Dec. 22, 1970, Ser. No. 100,773
Int. Cl. G21g *1/00*
U.S. Cl. 176—16 **4 Claims**

This invention relates to a method of enriching lanthanide and actinide isotopes which comprises loading at least one target lanthanide or actinide cation onto a finely divided particle of synthetic faujasite, heating said located faujasite at a temperature in the range of 350° to 750° C. to fix said cation, irradiating said previously heated faujasite with a neutron source to induce a (n, γ) transmutation reaction, and then selectively eluting a transmutation product having an atomic number greater than the irradiated target cation.

3,708,393

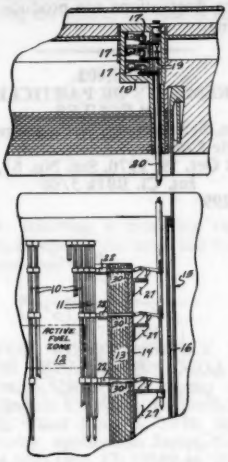
RADIAL RESTRAINT MECHANISM FOR REACTOR CORE

Gary R. Waymire, Richland, and John F. Lubeck, Kennewick, both of Wash., assignors to The United States of America as represented by the United States Atomic Energy Commission

Filed Dec. 1, 1970, Ser. No. 93,993
Int. Cl. G21c *19/20*
U.S. Cl. 176—40 **3 Claims**

A system of laterally supporting fuel assemblies for a fast reactor in a tight-packed array during operation of the reactor includes mechanical linkages operated through concentric operating shafts by motors located at the top of the reactor enclosure to force pressure bars against the sides of the array of fuel and reflector assemblies in the reactor at several vertical locations and at six locations around the reactor. Provision is

made within the mechanical linkage to allow for expansion of the reactor core due to thermal transients and to compensate



for variations in applied load due to radiation induced creep and stainless steel swelling.

3,708,394
PROCESS FOR PRODUCING NICOTINAMIDE ADENINE DINUCLEOTIDE

Kiyoshi Nakayama, Sagamihara-shi, Japan, assignor to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan

No Drawing. Continuation of application Ser. No. 657,057, July 31, 1967. This application June 17, 1968, Ser. No. 737,290
Claims priority, application Japan, Aug. 8, 1966, 41/51,663
Int. Cl. C12d *13/06*
U.S. Cl. 195—28 N **10 Claims**

A process for producing nicotinamide adenine dinucleotide which comprises culturing under aerobic conditions a microorganism capable of producing adenosine triphosphate from adenine in an aqueous nutrient medium containing from about 5% to about 20% by weight of at least one sugar as the main carbon source and from about 1.3% to about 3.0% by weight, as the concentration of PO_4, of a phosphoric acid compound, said culturing being carried out in the presence of (A) a compound selected from the group consisting of nicotinic acid, nicotinamide, nicotinic acid mononucleotide, nicotinic acid riboside, nicotinamide riboside, nicotinic acid adenine dinucleotide and mixtures thereof and (B) a compound selected from the group consisting of adenine, adenosine, adenosine monophosphate, adenosine diphosphate, adenosine triphosphate and mixtures thereof, and accumulating and recovering nicotinamide adenine dinucleotide from the resultant culture liquor. Preferred microorganisms employed in the process include bacteria belonging to the genera Brevibacterium, Corynebacterium, Arthrobacter and Micrococcus.

3,708,395
PROCESS FOR PRODUCING L-LYSINE

Kiyoshi Nakayama, Sagamihara, and Kazumi Araki, Tokyo, Japan, assignors to Kyowa Hakko Kogyo Company, Ltd., Tokyo, Japan

No Drawing. Filed July 13, 1970, Ser. No. 54,639
Claims priority, application Japan, July 23, 1969, 44/57,652
Int. Cl. C12d *13/06*
U.S. Cl. 195—29 **7 Claims**

A process for producing L-lysine by fermentation which comprises culturing a microorganism belonging to the genus *Brevibacterium flavum* or *Corynebacterium, glutamicum*, the microorganism having a nutritional requirement for homoserine, threonine, threonine plus methionine, leucine, isoleucine or mixtures thereof and a resistance to a feedback inhibition and/or repression of lysine, threonine, isoleucine or analogues thereof, under aerobic conditions in an aqueous nutrient medium. An increase in yield over conventional processes is obtained thereby.

3,708,396
PROCESS FOR PRODUCING MALTITOL

Masakazu Mitsuhashi, Okayama-shi, Okayama; Mamoru Hirao, Akaiwa-gun, Okayama, and Kaname Sugimoto, Okayama-shi, Okayama, all of Japan, assignors to Hayashibara Company, Okayama, Japan

Filed Jan. 8, 1969, Ser. No. 789,912
Claims priority, application Japan, Jan. 23, 1968, 43/3862; July 11, 1968, 43/48921; July 11, 1968, 43/48922
Int. Cl. C13d *1/00*
U.S. Cl. 195—31 R **24 Claims**

A process for producing maltitol from a starch slurry which comprises hydrolyzing the starch slurry with beta-amylase and alpha-1,6-glucosidase to produce a high maltose containing product and catalytically hydrogenating the maltose with Raney nickel after adjusting the pH of the maltose product with calcium carbonate.

3,708,397
SYRUP CONVERSION WITH IMMOBILIZED GLUCOSE ISOMERASE

Tibor Sipos, Murray Hill, N.J., assignor to Baxter Laboratories, Inc., Morton Grove, Ill.

Filed Dec. 22, 1969, Ser. No. 887,245
Int. Cl. C07g *7/02*
U.S. Cl. 195—31 R **2 Claims**

An immobilized glucose isomerase enzyme composition having improved stability to heat and capable of producing increased conversion of glucose to fructose is prepared by thoroughly admixing glucose isomerase, such as obtained from the fermented growth product of *Streptomyces phaechromogenes* and *Lactobacillus brevis*, with basic anionic exchange cellulose in aqueous buffer solution at pH 7–10 and recovering the enzyme complex from the reaction mixture.

3,708,398
FERMENTATION PROCESS FOR THE PRODUCTION OF CITRIC ACID

Joseph L. Sardinas, Gales Ferry, Conn., assignor to Pfizer Inc., New York, N.Y.

No Drawing. Filed Nov. 9, 1970, Ser. No. 88,115
Int. Cl. C12d *1/04*
U.S. Cl. 195—37 **9 Claims**

A process for producing citric acid by aerobically fermenting an aqueous carbohydrate-containing nutrient medium with selected yeast strains.

3,708,399
FERMENTATION PROCESS FOR THE PRODUCTION OF CITRIC ACID

Joseph L. Sardinas, Gales Ferry, Conn., assignor to Pfizer Inc., New York, N.Y.

No Drawing. Filed May 27, 1971, Ser. No. 147,637
Int. Cl. C12d *1/04*
U.S. Cl. 195—47 **3 Claims**

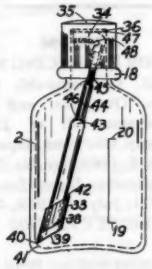
A process for producing citric acid by aerobically fermenting an aqueous carbohydrate-containing nutrient medium with a citric acid-accumulating strain of *Bacillus licheniformis*.

3,708,400

SAMPLER-CULTURE APPARATUS FOR THE DETECTION OF COLIFORM BACTERIA IN POTABLE WATERS

Abraham Adler Hirsch, 141 Norwood St., Shreveport, La. 71105

Filed Nov. 17, 1971, Ser. No. 199,648
Int. Cl. C12k *1/04, 1/10*
U.S. Cl. 195—127 **11 Claims**



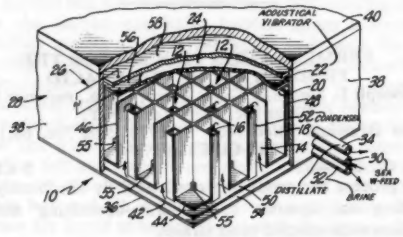
A go-no-go gage to determine directly whether bacterial quality of a drinking water sample meets the U.S. Public Health Service Standards in which all laboratory manipulations are eliminated from sampling to gas observation. The apparatus is creep-proof; it avoids exposures and the operations are precise. Gas from fermentation shows in a Durham vial held diagonally in a screw cap bottle either by being clamped in a cage or by a tailrod, both methods eliminating all axial and lateral motion. A confirmatory Brilliant Green Bile broth tube is seeded by pressing into the screw cap and inverting, thus obviating all extraneous utensils throughout the procedure.

3,708,401

ACOUSTICAL DISTILLATION APPARATUS

Philip S. Wessels, Diamond Bar, Calif., assignor of a fractional part interest to Boniard I. Brown, West Covina, Calif.

Continuation-in-part of application Ser. No. 578,785, Sept. 12, 1966. This application Oct. 13, 1969, Ser. No. 865,561
Int. Cl. B01d *3/02*
U.S. Cl. 202—173 **7 Claims**



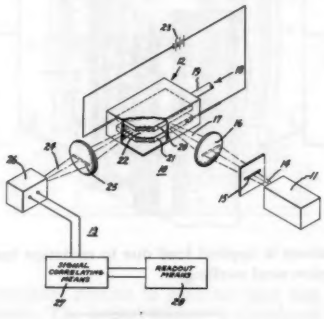
An acoustic distillation method and apparatus are provided wherein the free surface of the liquid to be distilled is subjected to cyclic pressure fluctuations occurring at an acoustic frequency to cause the pressure at the liquid surface to proceed through alternate rarefaction and compression modes. During the rarefaction modes, the vapor pressure at the free surface of the liquid is lowered to induce vaporization of liquid from the surface and conversion of liquid enthalpy into kinetic energy of the liquid vapor. The vapor is super heated during the compression modes and is thereafter passed in heat transfer relation to the incoming liquid to preheat the latter. In one disclosed embodiment, the acoustic pressure fluctuations are produced by a mechanically powered oscillating diaphragm. In a second disclosed embodiment, the acoustic pressure fluctuations are produced by an acoustical vapor engine.

3,708,402

MEASUREMENTS OF PARTICLES AND MOLECULES

Charles P. Bean, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Oct. 19, 1970, Ser. No. 81,824
Int. Cl. B01k *5/00*
U.S. Cl. 204—299 **7 Claims**



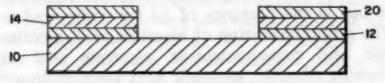
Particles to be measured and analyzed are placed in solution in a light transmissive cell. A shaped, flat beam is passed into the cell. Particles are urged through the beam and their passage causes time variations in the intensity of light scattered thereby. The scattered light is collected and transformed into an electrical signal. Signal is correlated with itself as a time varying function and the electrophoretic mobility of the particles is determined.

3,708,403

SELF-ALIGNING ELECTROPLATING MASK

Terrell B. Koger, 3811 East McKellips Road, Mesa, Ariz., and Lewis E. Terry, 4812 East Mitchell, Phoenix, Ariz.

Filed Sept. 1, 1971, Ser. No. 176,831
Int. Cl. C23b *5/50, 5/30, 5/24*
U.S. Cl. 204—15 **5 Claims**



A self-aligning electroplating mask and a method of electroplating using a self-aligning mask is disclosed. A layer of metal, for example, titanium, is deposited on a substrate. On top of the titanium film is deposited a film of a second metal such as platinum. The platinum metal is etched to expose the titanium. The exposed titanium is oxidized to provide a self-aligning mask. The titanium oxide mask enables a subsequent electroplating step to deposit a metal such as gold on top of the remaining platinum film. Then the titanium oxide mask is removed.

3,708,404

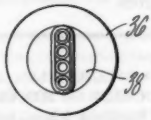
METHOD OF MAKING AN ELECTRODE FOR ELECTROCHEMICAL MILLING

Richard H. Shaw, Hampden, Mass., assignor to United Aircraft Corporation, East Hartford, Conn.

Filed April 5, 1971, Ser. No. 131,321
Int. Cl. C23b *7/00;* **B01k** *3/04;* **H01j** *9/16*
U.S. Cl. 204—16 **7 Claims**

A method of forming an electrode for electrochemically milling a slot or other noncircular holes in a work piece in-

cluding the steps of securing a plurality of conductive tubes together, enclosing the tubes in a metallic covering to form an assemblage, closing the ends of the tube at least at one end of



the assemblage, attaching a mounting ring if necessary, removing the closed ends of the tubes and forming one end to function as an electrode tip.

3,708,405

PROCESS FOR CONTINUOUSLY PRODUCING NICKEL OR NICKEL-GOLD COATED WIRES

Yoshihiro Kamata, Nikko-shi, Japan, assignor to The Furukawa Electric Company Limited, Tokyo, Japan

No Drawing. Filed Jan. 16, 1970, Ser. No. 3,500
Claims priority, application Japan, Jan. 22, 1969, 44/4,642; Dec. 17, 1969, 44/101,423
Int. Cl. C23b *5/50, 5/58, 5/52*
U.S. Cl. 204—37 R **2 Claims**

The present invention provides novel and useful processes, that is, a process for continuously producing nickel-coated metal wires by using a nickel sulfate bath to which sulfate of cobalt or an alkali metal is added, a process for continuously producing wires coated with double layers of nickel and gold by coating the above nickel-plated wires further with gold, and a process for repeatedly drawing and heat-treating those nickel-plated or nickel-gold-plated wires after the plating operation. Further, this invention is characterized by producing with high efficiency coatings of nickel or gold of a uniform thickness which possess excellent heat resistant adhesive property.

3,708,406

TINNING HIGH CARBON FERROUS METALS COATED WITH IRON USING ALKALINE PLATING BATHS WITH CHELATING AGENTS

Richard Parson, Berkeley Heights, N.J., assignor to Oakite Products, Inc., Berkeley Heights, N.J.

No Drawing. Continuation-in-part of abandoned application Ser. No. 172,118, Feb. 9, 1962, and a division of application Ser. No. 627,309, Mar. 31, 1967, now Patent No. 3,547,787, dated Dec. 15, 1970. This application Oct. 6, 1970, Ser. No. 78,562
Int. Cl. C23b *5/04, 17/00*
U.S. Cl. 204—38 S **20 Claims**

Hot dip tinning a high carbon ferrous metal such as cast, grey, malleable, mottled, white, or wrought iron by first cleaning from the metal any soil which might prevent electroplating on it, then electroplating on it an electrodeposit of iron from an alkaline iron-plating bath containing an organic sequestering agent and an iron compound.

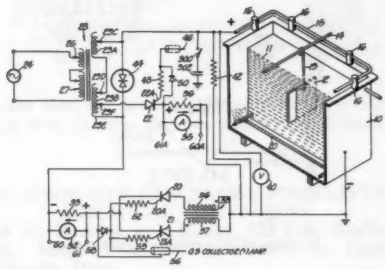
3,708,407

PROCESS FOR ANODIZING ALUMINUM AND ITS ALLOYS

Frederick S. Newman, Canoga Park, John R. Thorne, Hidden Hills, and John T. Hartman, Reseda, Calif., assignors to The Scionics Corporation, Northridge, Calif.

Original application Sept. 9, 1968, Ser. No. 758,258, now Patent No. 3,597,339. Divided and this application Dec. 23, 1970, Ser. No. 100,926
Int. Cl. B01k *3/00;* **C23b** *9/02, 11/02*
U.S. Cl. 204—56 **7 Claims**

An anodizing system uses both positive and negative current pulses. Such pulses are adjustable to achieve different adjusted values of positive and negative currents. These values are sensed and used to maintain automatically such valves. The ratio of negative current to positive current is preferably greater than 3% for the production of relatively thick, dyeable, hard anodized coatings and conventional (normal) anodic coatings of light shades of integral colors using a simple sulfuric acid bath which may be maintained at relatively high temperatures. Current may be applied at nearly full current density initially



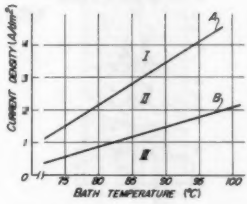
without burning. In some cases, additional means may be provided to increase the throwing power by eliminating the negative current and using means such as capacitors or inductors to prolong the decay of the positive pulses, preferably such that the then composite positive pulses are maintained above a zero value. These composite positive pulses are maintained in a ratio and wave shape which yields both good "throwing" power and high quality, even coatings, and produces the anodic coatings at relatively high current densities.

3,708,408

CELL USING MANGANESE DIOXIDE AS A CATHODE DEPOLARIZER AND A METHOD FOR PRODUCING SAID MANGANESE DIOXIDE

Atsushi Nishino, Neyagawa, Hiroshi Kumano, Daito, Yoshinori Noguchi and Kazunori Sonetaka, Kadoma, and Yasuji Amano, Hirakata, Japan, assignors to Matsushita Electric Industries Co., Ltd., Osaka, Japan

Filed Dec. 28, 1970, Ser. No. 101,714
Claims priority, application Japan, Dec. 29, 1969, 45/766, 45/767
Int. Cl. B01k *1/00;* **C01b** *15/00*
U.S. Cl. 204—96 **2 Claims**

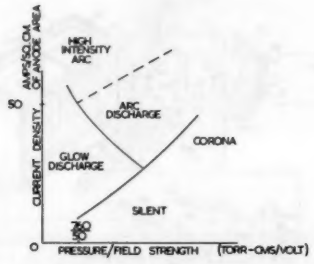


Manganese dioxide is obtained at the cathode by electrolyzing a hydrochloric acid-acidified aqueous manganese chloride solution with a specific current efficiency. The manganese dioxide has orientation is high in oxygen content and extremely active as a depolarizer for cells.

3,708,409
CHEMICAL PROCESS IN HIGH ENTHALPY THERMAL ENVIRONMENT AND APPARATUS THEREFOR

Robert Bainbridge, West Vancouver, British Columbia, Canada, assignor to Ionarc Smelters Ltd., British Columbia, Canada

Continuation-in-part of applications Ser. No. 708,853 and Ser. No. 708,921, both Feb. 28, 1968. This application May 22, 1969, Ser. No. 826,991
Int. Cl. B01k *1/00;* C22b
U.S. Cl. 204—164 30 Claims

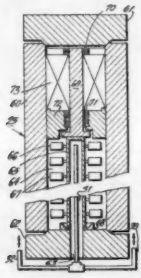


A process of the continuous type for treating a flowable non-gaseous material includes the steps of establishing an electric arc condition and maintaining that arc condition at a current density sufficient to give the arc a positive resistance characteristic to establish a high enthalpy zone, introducing the flowable material for passage through the maintained arc and the high enthalpy zone and then through a cooling atmosphere to a collection zone. The apparatus for performing this process includes a chamber in which are disposed a pair of spaced carbon containing electrodes between which a high intensity arc discharge is established with a tail flame so that an elongated high enthalpy zone is defined.

3,708,410
STIRRER AND RADIOACTIVE SOURCE FOR POLYMERIZATION REACTOR

Gerald M. Platz and William H. Palmer, Champaign, and James W. Mauck, Atwood, Ill., assignors to National Distillers and Chemical Corporation, New York, N.Y.

Filed Feb. 13, 1970, Ser. No. 11,248
Int. Cl. B01j *1/00, 1/10*
U.S. Cl. 204—193 5 Claims

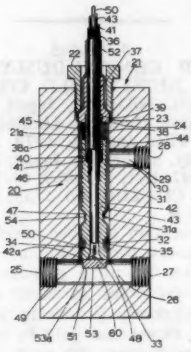


A polymerization reactor having a hollow stirrer drum which is an elongated drum having apertures therethrough with paddles extending across the apertures. The stirrer drum is concentrically disposed about an elongated source of gamma radiation which serves as the energy source for a polymerization reaction of material introduced into the reactor. The stirrer drum divides the reactor into two concentric and approximately equal volumes, one internal of the stirrer drum and one external of the stirrer drum, with the material being stirred and inter-mixed between the two chambers through the paddle apertures by rotation of the stirrer drum.

3,708,411
CONSTRUCTION OF ION ELECTRODE

Robert A. Vanslette, Medfield, Mass., assignor to The Foxboro Company, Foxboro, Mass.

Filed April 2, 1969, Ser. No. 817,238
Int. Cl. G01n *27/46*
U.S. Cl. 204—195 M 5 Claims

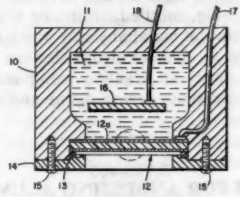


A compact construction for ion selective electrodes and reference electrodes, and a combination of both, is proposed wherein a plastic shrink tubing is employed for enclosing an integral assembly incorporating an attachment to an electrical cable; the shrink tubing also confines and supports the specific active membrane; the combination of specific ion and reference electrode is formed in a unitary compact assembly convenient for process applications.

3,708,412
ELECTROCHEMICAL CELL WITH COMPOSITE ELECTRODE-MEMBRANE

Harold C. Lofgren, Minneapolis, Minn., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Oct. 13, 1071, Ser. No. 188,923
Int. Cl. G01n *27/46*
U.S. Cl. 204—195 P 10 Claims

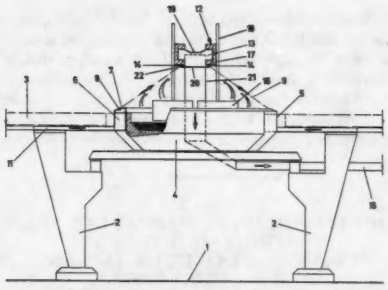


A composite laminated electrode diffusion medium for use with electrochemical cells, particularly of the type used to detect the proportionate amount of a gas in a fluid medium, includes an intermediate barrier membrane member of a gas permeable, non-conducting material flanked in sandwich fashion by gas permeable, non-conducting carrier membrane layers, wherein the outer layer carries a metal screen blocking member which reduces the amount of sample gas diffusing through the membrane and the inner layer carries the sensing electrode.

3,708,413
HIGH ENERGY CURABLE LIQUID POLYENE-POLYTHIOL POLYMER COMPOSITION
Clifton L. Kehr, Silver Spring, and Walter R. Wsolek, Sykesville, both of Md., assignors to W. R. Grace & Co., New York, N.Y.
Continuation-in-part of Ser. No. 617,801, Feb. 23, 1967, abandoned, which is a continuation-in-part of Ser. No. 567,841, July 26, 1966, abandoned. This application June 23, 1970, Ser. No. 49,191
Int. Cl. C08d *1/00*; C08f *1/16*; C08c *11/54*
U.S. Cl. 204—159.4 29 Claims

The invention disclosed is for a new high energy curable liquid polymer composition which includes a liquid polyene component having a molecule containing at least two unsaturated carbon-to-carbon bonds disposed at terminal positions on a main chain backbone of the molecule, and a polythiol component having a molecule containing a multiplicity of pendant or terminally positioned -SH functional groups per average molecule. The high energy curable liquid polymer composition upon curing in the presence of high energy irradiation forms odorless, solid, elastomeric products which may serve as sealants, coating, adhesives, and molded articles.

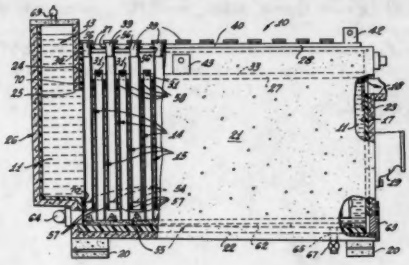
3,708,414
METHOD OF AND MEANS FOR REMOVING EXHAUST GASES FROM AN OPEN FURNACE VESSEL
Max Laube, Zurich-Hongg, Switzerland, assignor to Swiss Aluminium Ltd., Neuhausen am Rheinfall, Switzerland
Filed July 24, 1969, Ser. No. 844,480
Claims priority, application Switzerland, July 30, 1968, 11,439/68
Int. Cl. C22d *3/02*; F24f *9/00*
U.S. Cl. 204—247 6 Claims



For the removal of exhaust gases from an electrolytic melt vessel open on top, an air curtain is set up surrounding the top of the vessel and directed towards a source of suction.

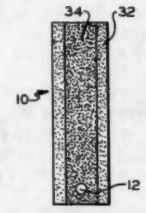
3,708,415
RAPID ACTION ELECTROLYTIC CELL
Walter A. Hubbard, deceased, by Ruby C. Hubbard, legal representative, P.O. Drawer 399, Carrizozo, N. Mex. 88301
Continuation-in-part of application Ser. No. 725,383, Apr. 30, 1968. This application May 24, 1971, Ser. No. 146,280
Int. Cl. C22d *1/02*; C23b *5/70*; B01k *3/04*
U.S. Cl. 204—257 16 Claims

An electro-refining cell having a series succession of alternating anodic and cathodic frames through which an electrolyte is circulated at a relatively rapid rate, the anodic frames containing current-distributing electrode rods of impure metal and fragmented impure metal. Insulating and sealing means space the frames apart and create a static zone beneath the frames and the main flow path so that anodic slimes settle out of the electrolyte through screens forming the bottoms of the anodic frames. The



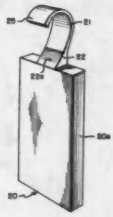
slimes are removed periodically from the static zone by dragging or by flushing the zone with a flow of electrolyte.

3,708,416
MULTIPOROSITY ELECTRODE FOR ELECTRO-CHEMICAL CONVERSION
Forrest N. Ruehlen and Homer M. Fox, Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.
Original application June 24, 1968, Ser. No. 739,505. Divided and this application Aug. 28, 1970, Ser. No. 67,883
Int. Cl. B01k *3/04*
U.S. Cl. 204—284 12 Claims



In an electrochemical process, the reaction takes place within the confines of a porous electrode element having a core section which is relatively impervious to the electrolyte and an outer section in contact with the electrolyte which has relatively large pores.

3,708,417
METHOD OF MAKING A CAST ANODE WITH HOOK
Carl G. Karna, Wheaton, Ill., assignor to R. Lavin & Sons, Inc.
Filed Nov. 18, 1970, Ser. No. 90,609
Int. Cl. B01r *3/04*
U.S. Cl. 204—286 2 Claims



There is disclosed a method for making a cast anode having integrally formed therewith an extension which is subsequently bent into a hook.

3,708,418

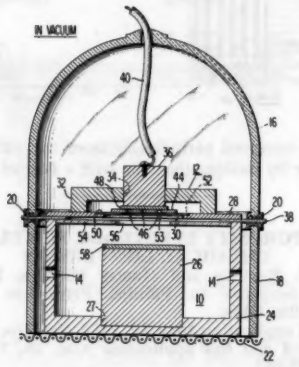
APPARATUS FOR ETCHING OF THIN LAYERS OF MATERIAL BY ION BOMBARDMENT

Richard Edward Quinn, Willingboro, N.J., assignor to RCA Corporation

Continuation-in-part of Ser. No. 612,908, Jan. 31, 1967, abandoned. This application March 5, 1970, Ser. No. 16,720

Int. Cl. C23c *15/00*

U.S. Cl. 204—298 1 Claim



A method of etching thin layers of material by bombarding a target with accelerated ions in the presence of a magnetic field parallel to the path of the accelerated ions and including apparatus to carry out the method. A voltage is applied to glow discharge electrodes in a vacuum environment causing plasma formation between the electrodes and accelerating the resultant ions toward a target to be etched. A magnetic field parallel to the accelerating electric field is provided to condense the ionic stream and cause more ions to strike the target. Some form of masking is utilized to define the desired pattern of holes in the surface layer of the target.

3,708,419

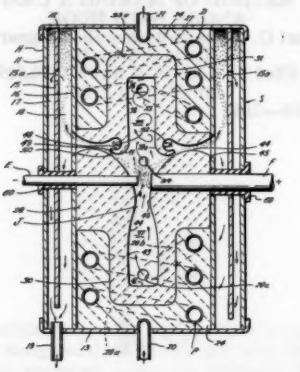
SELF-CYCLING FLUID HEATER

George M. Low, Deputy Administrator of the National Aeronautics and Space Administration with respect to an invention of, and Walter K. Moen, Newport Beach, Calif.

Filed Nov. 6, 1970, Ser. No. 87,551

Int. Cl. C22d *7/08*

U.S. Cl. 204—328 15 Claims



The specification discloses a self-cycling fluid heater including a high temperature upstream preheater for elevating the stream temperature, a high intensity jet arc heater which heats the preheated fluid stream to ultra high reaction temperatures and discharges said stream into an electric resistance tubular heat exchanger having variations in wall thickness at measured intervals along its length to precisely control the temperature of the fluid passing through such heat exchanger for desired time intervals to provide the specified chemical reactions desired.

3,708,420

CATALYST TRANSFER IN A PLURAL BED HYDROGENATION PROCESS

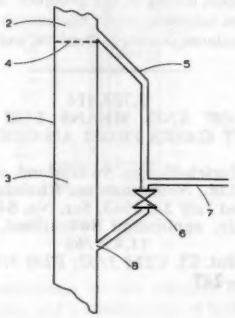
Robert Leard Irvine, Rob, Nes, Pyle Hill, Woking, Surrey, England

Filed Feb. 25, 1971, Ser. No. 118,697

Claims priority, application Great Britain, Feb. 27, 1970, 9519/70

Int. Cl. C10g *23/06*

U.S. Cl. 208—156 2 Claims



The invention relates to a process for the hydrogenation of hydrocarbon feedstocks in a reactor comprising a number of catalyst beds through which fluidized catalyst descends in countercurrent to feed and hydrogen. The invention provides a catalyst transfer system whereby the catalyst is moved in batches from an upper to the next lower bed by an external catalyst transfer pipe provided with an inlet for hydrogen.

3,708,421

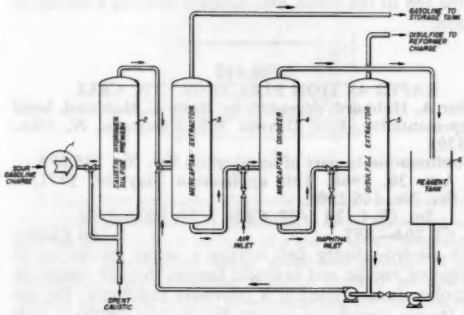
PROCESS TO REMOVE MERCAPTAN SULFUR FROM SOUR OILS

Charles W. Rippie, 1731 S. Cheyenne, Tulsa, Okla. 74019

Filed Sept. 20, 1971, Ser. No. 181,946

Int. Cl. C10g *29/22*

U.S. Cl. 208—244 R 9 Claims



A process for the removal of mercaptan sulfur in the manufacture of petroleum products by treating sour gaso-

lines and other petroleum distillates in the boiling range of 100 to 400 degrees Fahrenheit with a reagent formed by reacting a water soluble metal salt with a mixture of a glycinate derivative in an alkaline solution in which the said metal salt in an alkaline solution combines with mercaptan sulfur compounds in a sour gasoline and distillate stream; by prewashing the sour gasoline and distillates with a caustic-hydrogen sulfide solution; a first step of extracting the mercaptan sulfur compounds from the sour gasoline and distillates in the presence of the said alkaline reagent; a second step of oxidizing the mercaptan sulfur compounds in the spent alkaline reagent with a gas containing oxygen so as to regenerate the spent alkaline reagent for recycling for use in the said first step; and, a third step of extracting the disulfide sulfur from the regenerated reagent.

ERRATUM

For Class 252—156 see:
Patent No. 3,708,364

3,708,422

ELECTRIC DISCHARGE MACHINING FLUID

John W. Swanson, Yardley, Pa., assignor to Cities Service Oil Co.

Filed Jan. 29, 1971, Ser. No. 111,115
Int. Cl. C10m *1/32, 1/50*
U.S. Cl. 252—49.6 **7 Claims**

An improved electric discharge machining fluid permitting rapid removal of metal, particularly in the case of difficulty machined cast iron. The electric discharge machining fluid comprises a major proportion of an oil and a minor proportion of an oil-soluble aliphatic amine containing about 10 to 50 carbons. The preferred electric discharge machining fluid comprises a hydrocarbon oil and an oil-soluble aliphatic primary monoamine containing about 12 to 25 carbons.

3,708,423

ANNULAR CORE CONSISTING OF A FERROMAGNETIC FERRITE AND TO BE USED AS A MAGNETIC MEMORY ELEMENT AND METHOD OF MANUFACTURING SUCH A MAGNETIC CORE

Cornelis Jacobus Esveldt and Nicolaas Petrus Slijkerman, Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

No Drawing. Filed Jan. 5, 1971, Ser. No. 104,157
Claims priority, application Netherlands, Feb. 4, 1970, 7001539
Int. Cl. C04b *35/26*
U.S. Cl. 252—62.61 **5 Claims**

The invention relates to magnet cores consisting of a ferromagnetic ferrite and having extremely small dimensions (so-called "14-mil-cores") and to the manufacture of such cores. On the one hand, memory elements consisting of copper manganese ferrite, and on the other hand memory elements consisting of lithium nickel ferrite were already known. However, 14-mil-cores having fully satisfying properties cannot be manufactured from either of the two ferrite types. The invention provides a way out from this difficulty by proposing to construct a memory core from a combination of the two above-mentioned types of ferrite. The memory elements according to the invention consisting of mixed ferrites of copper, manganese, lithium and nickel unite in themselves the favourable properties, but do not show the less favourable properties of the manganese ferrite and lithium nickel ferrite, respectively, as components for memory cores of the 14-mil-type.

3,708,424

IONIC CONDUCTIVE SOLID ELECTROLYTE

Susumu Yoshimura and Reiji Sano, both of 1006 Oaza Kadoma, Osaka, Japan

No Drawing. Filed Feb. 25, 1971, Ser. No. 118,988
Claims priority, application Japan, Mar. 4, 1970, 45/18,895
Int. Cl. H01g *9/02*
U.S. Cl. 252—62.2 **8 Claims**

An ionically conductive organic solid material is provided, which is useful for an electrolyte for use in electric devices. The material is a crystalline electron donor-acceptor complex comprising an acceptor of 7,7,8,8-tetracyanoquinodimethane, and donors of monovalent cation interstitial and including multivalent cation impurities so as to possess the excellent ionic conductivity suitable for an electrolyte.

3,708,425

DETERGENT BARS

Russell Edward Compa, West Orange, Charles Frederick Fischer, Jersey City, and Robert Tweedy Hunter, Jr., and Raymond Camillus Odioso, Piscataway, N.J., assignors to Colgate-Palmolive Company, New York, N.Y.

Continuation of abandoned application Ser. No. 682,411, Nov. 13, 1967. This application Nov. 2, 1970, Ser. No. 86,372
Int. Cl. C11d *3/02*
U.S. Cl. 252—89 **14 Claims**

Detergent bar made by working a detergent such as soap or alkylbenzenesulfonate with puffed borax. Other ingredients such as tripolyphosphates may also be present.

3,708,426

HAIR COSMETIC PREPARATION

Karlheinz Schrader, Bevern, Germany, assignor to Dragoco Spezialfabrik Kanz Riech-und Aroma-staffe Gerberding & Co. GMBH, Holzminden, West Germany

Filed June 16, 1970, Ser. No. 46,830
Claims priority, application Germany, March 10, 1970, P 20 11 156.2
Int. Cl. C11d *17/04*
U.S. Cl. 252—90 **2 Claims**

A preparation for cleaning and removing fatty material from the hair comprises a water insoluble organic polymer in an organic solution.

3,708,427

WASHING AND CLEANSING COMPOSITIONS

Gunter Jakobi, Hilden Rhineland, and Peter Berth, Leichlingen, Germany, assignors to Henkel & Cie. GmbH, Dusseldorf-Holthausen, Germany

No Drawing. Filed Dec. 8, 1970, Ser. No. 96,267
Claims priority, application Germany, Dec. 20, 1969, P 19 64 024.5
Int. Cl. C11d *7/18, 7/56*
U.S. Cl. 252—99 **6 Claims**

Builder salt-containing washing and cleansing compositions comprising (a) one part by weight of a capillary-active compound selected from the group consisting of anionic surface-active compounds, non-ionic surface-active compounds and amphoteric surface-active compounds and (b) 0.5 to 20 parts by weight of a mixture of builder salts consisting of (1) from 20% to 75% by weight of said mixture of pentasodium triphosphate (2) from 10% to 60% by weight of said mixture of sodium citrate, and (3) from 3% to 50% by weight of said mixture of sodium metasilicate having a ratio $Na_2O:SiO_2$ of 1:1.

3,708,428

DETERGENT COMPOSITIONS CONTAINING SILICA COLLOIDS

Louis McDonald, Altadena, Calif. (P.O. Box 2917, Terminal Annex, Los Angeles, Calif. 90054)

No Drawing. Filed Jan. 24, 1968, Ser. No. 700,004
Int. Cl. C11d *9/10*
U.S. Cl. 252—109 10 Claims

This invention is concerned with detergent compositions containing colloidal silica to enhance their cleaning and soil removal ability. The colloidal silica is formed in situ as a sol by the reaction of water-soluble or dispersible alkali silicates with a variety of anionic, detergent-forming organic acids, exemplified by fatty acids of from eight to twelve carbon atoms or alkyl aryl sulfonic acids. The colloidal silica is characterized by an alkaline oxide to SiO_2 ratio of from 1:4 to 1:2000 or more.

3,708,429

CLEANING COMPOSITIONS

Philip George Hall, Poulton, England, assignor to Lever Brothers Company, New York, N.Y.

No Drawing. Filed Feb. 25, 1971, Ser. No. 119,057
Claims priority, application Great Britain, Mar. 6, 1970, 10,870/70
Int. Cl. C11d *7/06*
U.S. Cl. 252—156 9 Claims

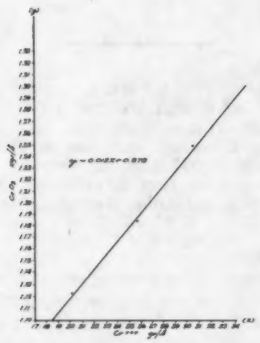
A substantially anhydrous cleaning composition incorporates a surface active agent, an alkaline catalyst and an acid release agent in a lower aliphatic alcohol. The undiluted composition is strongly alkaline and is effective for removing fatty soils from pans and the like, but when the composition is added to water the acid release agent tends to lower the alkalinity to an acceptable level for dishwashing purposes.

3,708,430

CHROMIC ACID CONDITIONER FOR TREATMENT OF POLYMERIC RESIN SURFACES FOR ELECTROLESS PLATING

Leon A. Kadison and Eileen Maguire, San Gabriel, Calif., assignors to Crown City Plating Co., El Monte, Calif.

Original application Oct. 31, 1969, Ser. No. 872,880. Divided and this application Nov. 18, 1971, Ser. No. 200,254
Int. Cl. C09j *5/02*
U.S. Cl. 252—188 8 Claims



Aqueous chromic acid solutions containing from 1.1 to 1.3 kilograms of chromium trioxide per liter of solution as provided by the presence of trivalent chromium are used to condition polymeric resin surfaces for electroless plating.

3,708,431

DISPENSING PACKAGE

Samuel B. Prussin, 2126 Banyon Dr., Los Angeles, Calif.

Filed April 26, 1971, Ser. No. 137,606
Int. Cl. C09k *3/00*
U.S. Cl. 252—188.3 16 Claims

Packages are described which comprise surfactant-forming acid and surfactant-forming base compositions maintained isolated from each other within a container with valve means communicating with each composition. Actuation of the valve means results in dispensing a surfactant. Through use of chemical heat generating means within the package, the surfactant can be dispensed in a warmed state.

3,708,432

NUCLEAR FUEL

Leonard V. Triggiani, Rockville, Norton Haberman, Bethesda, and Moises G. Sanchez, Severna Park, Md., assignors to W. R. Grace & Co., New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 647,606, June 21, 1967. This application Aug. 28, 1969, Ser. No. 853,980
The portion of the term of the patent subsequent to Mar. 17, 1987, has been disclaimed
Int. Cl. C09k *3/00*
U.S. Cl. 252—301.1 S 8 Claims

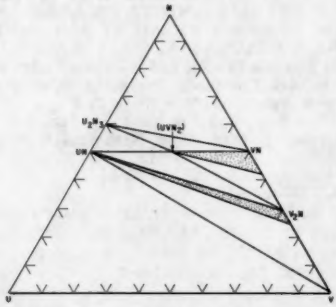
A process for preparing a nuclear fuel containing small amounts of inorganic ions by impregnating formed particles with inorganic salts.

3,708,433

STABILIZED URANIUM OR URANIUM-PLUTONIUM NITRIDE FUEL

James M. Leitnaker, Kingston, Tenn., and Karl E. Spear, II, State College, Pa., assignors to the United States of America as represented by the United States Atomic Energy Commission

Filed Aug. 27, 1970, Ser. No. 67,452
Int. Cl. G21c *21/00*
U.S. Cl. 252—301.1 R 7 Claims



A nuclear fuel composition which exhibits minimal reaction with stainless steel cladding at reactor service conditions is provided comprising a metal-containing uranium or uranium-plutonium nitride composition which forms, under reactor service conditions, a UXN_2 or $(U, Pu)XN_2$ compound as a separate stable phase where X is a metal selected from the group consisting of vanadium, chromium and niobium. These compounds are formed by reaction of fuel with excess nitrogen as the nitrogen is produced from fuel burnup in the reactor. Thus, the nitrogen equilibrium pressure is stabilized to a value below that which will react with the stainless steel cladding.

3,708,434

CHROMIUM MOLYBDATE, TELLURIUM OXIDE, PHOSPHORUS OXIDE CATALYST

Jamal S. Eden, Akron, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.

No Drawing. Original application May 2, 1968, Ser. No. 726,218. Divided and this application Nov. 2, 1970, Ser. No. 86,385

Int. Cl. B01j *11/82*

U.S. Cl. 252—435 3 Claims

Unsaturated acids and aldehydes as acrylic acid and acrolein or methacrylic acid and methacrolein are prepared in excellent yields and at improved rates by the oxidation of an olefin as propylene or isobutylene in the presence of a catalyst containing chromium molybdate, tellurium oxide and phosphorus oxide.

3,708,435

METHOD OF CLEANING HUMAN SKIN

Jesse H. Starkman, 100 Wilmot Road, Deerfield, Ill. 60015

No Drawing. Filed July 2, 1969, Ser. No. 838,702

Int. Cl. C11d *3/26, 3/32, 9/30*

U.S. Cl. 252—544 4 Claims

A method for enhancing the texture of skin along with the characteristics of various cosmetics comprising applying to the skin a composition comprising a minor amount, preferably about 0.5 to 20.0%, water-soluble polyurethane. Where the water-soluble polyurethane is intended to remain on the skin for any significant time period, the composition should also include a plasticizer which is a co-solvent for water-soluble polyurethane and for the oils in the skin.

3,708,436

DETERGENT BUILDERS

Ralph B. Thompson, Oak Brook, Peter G. Pappas, Downers Grove, and Joseph M. Sandri, Flossmoor, Ill., assignors to Nalco Chemical Company, Chicago, Ill.

No Drawing. Filed Dec. 12, 1969, Ser. No. 884,739

Int. Cl. C11d

U.S. Cl. 252—527 6 Claims

A synergistic mixture of polymeric maleic anhydride (PMA) with sodium nitrilotriacetate (NTA) or sodium tripolyphosphate (STP) is employed as a detergent builder with or without purification of the PMA. Maleic anhydride also has a synergistic effect with purified PMA. NTA has a synergistic effect with maleic anhydride-methacrylate copolymers, vinyl acetate-maleic anhydride copolymers, and with styrene-maleic anhydride copolymers.

3,708,437

2-OLEFIN SULFONATE FOR LIQUID DETERGENTS

William A. Sweeney, Larkspur, Calif., assignor to Chevron Research Company, San Francisco, Calif.

No Drawing. Filed Dec. 4, 1969, Ser. No. 882,313

Int. Cl. C11d *1/12*

U.S. Cl. 252—555 5 Claims

Detergent active materials having low cloud points in aqueous solutions of inorganic salts, the active materials comprising olefin sulfonates of substantially linear monoolefin of 10 to 24 carbon atoms and in which at least 40 percent by weight of the sulfonates are 2-olefin sulfonates.

3,708,438

PROCESS FOR THE PREPARATION OF LEAD CONTAINING PIEZOELECTRIC POWDERS

Newton Levy, Jr., Ellicott City, Md., assignor to W. R. Grace & Co.

Continuation-in-part of Ser. No. 699,782, Jan. 23, 1968, abandoned. This application Jan. 27, 1971, Ser. No. 110,290

Int. Cl. C04b *35/46, 35/48*

U.S. Cl. 252—62.9 6 Claims

A process for preparing lead oxide containing piezoelectric ceramic bodies capable of being sintered to greater than 90 percent of theoretical density at temperatures of 800 to 1,100° C by subjecting an intimate mixture of lead compounds with other materials to thermal dehydration or decomposition in a high temperature fluid energy mill.

ERRATUM

For Class 252—364 see:
Patent No. 3,708,508

3,708,439

POLYBENZIMIDAZOLES

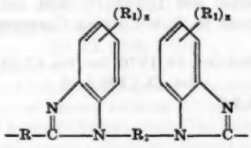
Adnan A. R. Sayigh, North Haven, Benjamin W. Tucker, Bethany, and Henri Ulrich, Northford, Conn., assignors to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Filed Sept. 28, 1971, Ser. No. 184,621

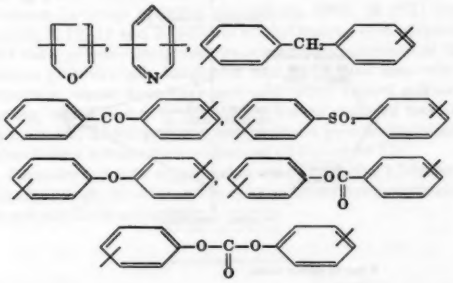
Int. Cl. C08g *33/02*

U.S. Cl. 260—2 R 4 Claims

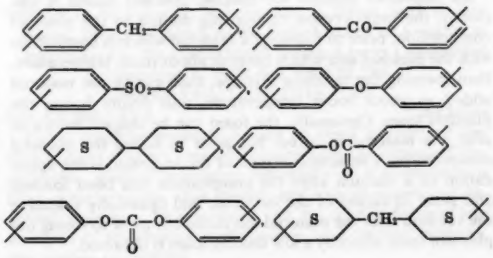
Polybenzimidazoles are described which are characterized by the recurring unit:



wherein R=arylene (C_{6-12}), alkylene (C_{1-12}), cycloalkylene (C_{5-8}),



R_1=lower-alkyl, lower-alkoxy, halogen; x=0–3 and R_2=arylene (C_{6-12}),



The polybenzimidazoles possess markedly high thermal stability as compared with previously known compounds of this class which have H atoms attached to ring nitrogen. They also possess lower glass transition and melt temperatures than previously known polybenzimidazoles and, accordingly, possess the advantage that they can be fabricated using conventional molding techniques.

3,708,440

RECLAIMING SCRAP POLYISOCYANURATE FOAM WITH AN ALIPHATIC DIOL AND A DIALKANOLAMINE

Floro F. Frulla, Wallingford, Alec Odinak, New Haven, and Adnan A. R. Sayigh, North Haven, Conn., assignors to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Filed Feb. 14, 1972, Ser. No. 226,275
Int. Cl. C08g *53/22*
U.S. Cl. 260—2.3 **3 Claims**

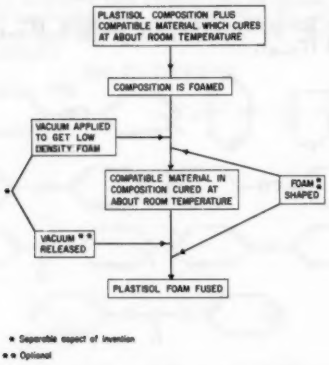
A process is disclosed for converting scrap polyisocyanurate foam into a polyol which can be used, without the need for any further treatment, as the polyol component in the preparation of polyurethane and related foams. The process comprises heating the scrap at about 175° C. to about 250° C. in the presence of a mixture of (a) an aliphatic diol having from 2 to 6 carbon atoms, inclusive, and a boiling point above about 180° C. and (b) a dialkanolamine having from 4 to 8 carbon atoms, inclusive, the dialkanolamine constituting from about 2 percent to about 20 percent by weight of the mixture.

3,708,441

PROCESS FOR MAKING PVC FOAMS

Wallace G. Joslyn, and Joseph W. Keil, both of Midland, Mich., assignors to Dow Corning Corporation, Midland, Mich.

Filed Oct. 19, 1970, Ser. No. 82,031
Int. Cl. C08j *1/16*
U.S. Cl. 260—2.5 P **16 Claims**


PLASTISOL COMPOSITION PLUS COMPATIBLE MATERIAL WHICH CURES AT ABOUT ROOM TEMPERATURE
COMPOSITION IS FOAMED
VACUUM APPLIED TO GET LOW DENSITY FOAM
COMPATIBLE MATERIAL IN COMPOSITION CURED AT ABOUT ROOM TEMPERATURE
FOAM * SHAPED
VACUUM * * RELEASED
PLASTISOL FOAM FUSED
* Separable aspect of invention
* * Optional

An improved process for making plastisol foams is disclosed, the improvement comprising adding to the plastisol composition, prior to foaming, a material which is compatible with the plastisol and which cures at about room temperature, then foaming the resulting mixture, then curing the material added at about room temperature, and finally fusing the plastisol foam. Optionally, the foam can be shaped before or after the material is cured, but prior to fusing the plastisol composition. A separable aspect of the invention is the application of a vacuum after the composition has been foamed and prior to curing of the material, and optionally releasing the vacuum after the material has cured but prior to fusing the plastisol foam whereby a low density foam is obtained.

3,708,442

PROCESS FOR PREPARING FOAM MATERIALS RESISTANT TO PRESSURE AND HEAT FROM MIXTURES OF BITUMINOUS MASSES AND PHENOLIC RESINS

Heinz-Gerhard Franck and Walter Metzendorf, Duisburg-Meiderich, and Johannes Turowski, deceased, late of Castrop-Rauxel, Germany, by Else Paula Maria Turowski, nee Hinz, heir, and Jaafar Omran, Nijssen, and H. G. Jozef, Castrop-Rauxel, Germany, assignors to Rutgerswerke Aktiengesellschaft, Frankfurt am Main, Germany

No Drawing. Filed May 5, 1970, Ser. No. 34,879
Int. Cl. C08j *1/14*
U.S. Cl. 260—2.5 F **7 Claims**

Foam materials resistant to pressure and heat are prepared from mixtures of bituminous masses and phenolic resins by condensation of a mixture of bituminous masses, phenols and hexamethylenetetramine in the presence of an alkaline catalyst at a reaction temperature in the range of 140 to 200° C. for about 4 hours and foaming and hardening the resulting mixture consisting of bituminous masses and phenol-formaldehyde resins by incorporating therein hexamethylene-tetramine.

3,708,443

POLYURETHANE FOAMS AND ELASTOMERS BASED ON HALOGEN-CONTAINING POLYESTERS

Ulrich Toggweiler and Frank F. Roselli, Redwood City, Calif., assignors to Diamond Shamrock Corporation

No Drawing. Original application Jan. 25, 1967, Ser. No. 611,574, now Patent No. 3,536,782. Divided and this application July 17, 1970, Ser. No. 62,777
Int. Cl. C08g *22/10, 22/44*
U.S. Cl. 260—2.5 AV **13 Claims**

Halogen-containing urethane products are prepared by coreacting an organic isocyanate compound and a halogenated polyester that has been produced by halogenating a particular type of unsaturated polyester. The unsaturated polyester is derived from the condensation of reactants that include a non-alpha,beta-ethylenically unsaturated dicarboxylic acid or anhydride to provide the principal loci for halogenation.

3,708,444

FOAMED AND FOAMABLE COPOLYMERS

Wolfgang Ganzler, Darmstadt, Gunter Schroder, Ober-Ramstadt-Eiche, and Peter Huch, Buchschlag Uber Sprendlingen, Germany, assignors to Rohm & Haas G.m.b.H., Darmstadt, Germany

No Drawing. Continuation of abandoned application Ser. No. 682,496, Nov. 13, 1967. This application May 19, 1971, Ser. No. 145,038
Int. Cl. C08f *29/34, 47/10*
U.S. Cl. 260—2.5 N **10 Claims**

Improvement in the stability to water of foamed copolymers of (A) acrylic or methacrylic acid and (B) acrylonitrile, acrylamide, methacrylonitrile or methacrylamide and, if desired, (C) additional comonomer in the presence of 3 to 20 percent urea or dimethylurea by addition of 0.01 to 10% by weight of a cross-linking agent to the monomer mix before copolymerization.

3,708,445

POLYMERIC THICKENERS AND METHOD OF PREPARING AND USING THE SAME

Thomas B. Junas, Arlington, and Augustin La Torre, Burlington, Mass., assignors to General Latex and Chemical Corporation, Cambridge, Mass.

No Drawing. Original application Apr. 20, 1970, Ser. No. 30,285, now Patent No. 3,652,497. Divided and this application Nov. 26, 1971, Ser. No. 202,629
Int. Cl. C08d *13/06;* **C08f** *45/24*
U.S. Cl. 260—4 R **11 Claims**

A polymeric surfactant thickener comprising a copolymer of an ester of an alkylarylpolyether alcohol, such as

an alkylphenoxypolyethyleneoxyethanol, with an unsaturated carboxylic acid compound, such as acrylic or methacrylic acid, and an unsaturated acid compound, which copolymer comprises from about 70 to 95% of the ester and from about 5 to 30% of the unsaturated carboxylic acid, and which copolymer contains from about 20 to 100 oxyethylene groups. The polymeric surfactant thickener is particularly useful in thickening polymeric latex compositions, such as carboxylated styrene-butadiene latex containing filler material.

3,708,446

GRAFT COPOLYMERS OF XANTHOMONAS HYDROPHILIC COLLOID AND ACRYLIC MONOMER

David J. Pettitt, San Diego, Calif., assignor to Kelco Company, San Diego, Calif.

No Drawing. Filed Mar. 24, 1971, Ser. No. 127,796

Int. Cl. C08f *29/50*

U.S. Cl. 260—17.4 GC **37 Claims**

Graft copolymers of a Xanthomonas hydrophilic colloid with an acrylic monomer. Method of making graft copolymers by treating a Xanthomonas hydrophilic colloid and an acrylic monomer in an aqueous medium in the presence of a ceric salt which is soluble in the acid corresponding to the acid anion in the ceric salt. The ceric salt is added in the form of a solution in the acid corresponding to the acid anion of the salt and the copolymerization is carried out under a protective atmosphere to exclude oxygen. The copolymerization may be carried out in a fermentation beer containing a Xanthomonas hydrophilic colloid as produced by the growth of Xanthomonas bacteria in the fermentation medium.

3,708,447

GRAFT COPOLYMERS CONTAINING N-3-OXOHYDROCARBON-SUBSTITUTED ACRYLAMIDE UNITS

Donald Irvin Hoke, Chagrin Falls, Ohio, assignor to The Lubrizol Corporation, Wickliffe, Ohio

No Drawing. Filed Mar. 22, 1971, Ser. No. 127,012

Int. Cl. D06m *15/38;* **C08f** *25/00, 43/08*

U.S. Cl. 260—17.4 GC **3 Claims**

Graft copolymers are formed by reacting a naturally occurring polyhydroxy base polymer, such as cellulose, with an N-3-oxohydrocarbon-substituted acrylamide such as diacetone acrylamide in the presence of a free radical catalyst, preferably a salt of periodic acid or a ceric salt. The grafting operation modifies the properties of the base polymer.

3,708,448

COATING COMPOSITION

Anthony D. Ippolito, Trenton, and Howard Van Arsdale, Robbinsville, N.J., assignors to NL Industries, Inc., New York, N.Y.

No Drawing. Filed July 13, 1971, Ser. No. 162,278

Int. Cl. C09j *3/26*

U.S. Cl. 260—24 **11 Claims**

A protective coating composition for metal surfaces, such as printed circuit boards and the like, which are subjected to soldering operations, has been prepared, said composition consisting essentially of a mixture of rosin and polyurethane dissolved in an organic solvent, the amount of rosin present in said composition being from 10 to 50 parts for each part of polyurethane and the amount of solvent being from 70 to 95 parts for each 5 to 30 parts of rosin.

The protective coating composition of this invention is also compatible with a rosin fluxing system and therefore the protective coating does not have to be removed prior to soldering.

3,708,449

FLUX COMPOSITION

Anthony D. Ippolito, Trenton, and Howard Van Arsdale, Robbjnsville, N.J., assignors to NL Industries, Inc., New York, N.Y.

No Drawing. Filed July 13, 1971, Ser. No. 162,314

Int. Cl. C09j *3/26*

U.S. Cl. 260—24 **11 Claims**

A solder reflux coating composition, suitable for use as a solder flux and in addition as a protective coating for the surface of solder preforms and the like, has been prepared, said composition consisting essentially of a mixture of rosin and polyurethane dissolved in an organic solvent, the amount of rosin present in said composition being from above 50 to 150 parts for each part of polyurethane and the amount of solvent being from above 40 to 70 parts for each 30–60 parts of rosin.

3,708,450

ELASTOMERIC POLYESTER-DERIVED POLYURETHANES CONTAINING 12-HYDROXYMETHYL-TETRAHYDROABIETANOL

John B. Lewis, and Glen W. Hedrick, both of Lake City, Fla., assignors to the United States of America as represented by the Secretary of Agriculture

Division of Ser. No. 36,673, May 12, 1970, Pat. No. 3,673,240. This application Dec. 16, 1971, Ser. No. 208,935

Int. Cl. C08g *17/16*

U.S. Cl. 260—26 **1 Claim**

Ethylene glycol adipic acid polyester was modified by incorporating the naval stored derived 12-hydroxymethyltetrahydroabietanol in the polyester chain. The modified polyester was blended with a poly (ethylene adipate) glycol (mol. wt. 2000) and 1,4-butanedio, $Bu(OH)_2$, giving glycol mixtures which were reacted with toluene diisocyanate TD1. Clear strong polyurethane films (26.6 percent TD1) from glycol mixtures (average hydroxyl equivalents, OHE, of 252) containing 5, 10, 15 and 20 percent resinyl moiety were prepared and their polymer properties examined. Incorporation of the moiety gave strength, toughness, and stiffness to films which otherwise would have been soft and tacky. Glycol mixtures having higher hydroxyl equivalents values required less isocyanate and addition of the resinyl glycol gave strong elastic cilms from a composition containing 16.6 percent TD1.

Experimental data suggests that use of the bulky 12-hydroxymethyltetrahydroabietanol may be an important contribution to polyurethane technology.

3,708,451

METHOD AND COMPOSITION FOR PREPARING GRAPHITE PRODUCTS

William C. McWhorter, and Norman L. Dykes, both of Oak Ridge, Tenn., assignors to the United States of America as represented by the United States Atomic Energy Commission

Filed Sept. 8, 1971, Ser. No. 178,798

Int. Cl. C08g *51/34;* **C01b** *31/07*

U.S. Cl. 260—29.8 **3 Claims**

Dense graphite products having an open porosity of less than one per cent are prepared by employing an improved graphitizable mixture consisting essentially of a carbonaceous filler, a carbonizable resin binder, and a small quantity of dissolved camphor. This mixture can be readily formed into products of the desired configuration by extrusion, molding, slip casting, or spraying.

3,708,452

HYDROGEL OF UNSATURATED POLYESTER RESIN AND UNSATURATED CARBOXYLIC ACID POLYMER SALT, AND HARDENED COMPOSITES THEREOF

Tsuneo Tsubakimoto and Masao Nikki, Toyonaka-shi, and Norio Mizuta, Kobe-shi, Japan, assignors to Nippon Shokubai Kagaku Kogyo Co., Ltd., Osaka, Japan

No Drawing. Filed Sept. 24, 1970, Ser. No. 75,295
Claims priority, application Japan, Sept. 25, 1969, 44/75,784; Dec. 9, 1969, 44/98,302
Int. Cl. C08f *45/24*
U.S. Cl. 260—29.6 NR 10 Claims

Hardened compound resin compositions comprising a finely divided, rubbery hydrogel of a polymer of a water-soluble salt of at least one carboxylic acid of the general formula,

$$CH_2=C(R)COOH$$

(in which R is hydrogen atom or methyl group)

in uniformly dispersed form and a hardened, unsaturated polyester resin is prepared by providing a water-in-oil emulsion composed of an aqueous solution of water-soluble salt of at least one carboxylic acid of the general formula,

$$CH_2=C(R)COOH$$

(in which R is hydrogen atom or methyl group)

as the aqueous phase and unsaturated polyester resin as the oil phase, and polymerizing and hardening the above emulsion in the presence of polymerization initiator for the water-soluble salt and a polymerization initiator for the unsaturated polyester resin.

3,708,453

LINEAR SEGMENTED POLYURETHANES

Wilhelm Thoma, Berg. Neukirchen, Harald Oertel, Odenthal-Globusch, and Heinrich Rinke, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Oct. 9, 1970, Ser. No. 79,714
Claims priority, application Germany, Oct. 17, 1969, P 19 52 394.5
Int. Cl. C08g *22/04*
U.S. Cl. 260—30.2 7 Claims

Linear segmented polyurethanes containing chain extending segments derived from monoureadihydrazides and a process for their production. The polyurethanes are useful in the production of elastomeric filaments.

3,708,454

THERMAL STABILIZATION OF POLYSULFONE POLYMERS

Joel William Barlow, Piscataway, Raymond George Azrak, Whitehouse, and Lloyd Mahlon Robeson, Lebanon, N.J., assignors to Union Carbide Corporation, New York, N.Y.

No Drawing. Filed May 6, 1971, Ser. No. 141,041
Int. Cl. C08g *45/56*
U.S. Cl. 260—37 R 15 Claims

Polyarylene polyether polysulfone thermoplastic polymers are stabilized by the addition of non-hydrolyzable divalent metallic oxides and sulfides.

3,708,455

REINFORCED POLYPHENYLENE ETHER COMPOSITIONS

Atsuo Nakanishi, Kanagawa; Shinichi Izawa, Tokyo, and Kunio Toyama, Kanagawa, all of Japan, assignors to Asahi-Dow Limited, Tokyo, Japan

Filed June 29, 1971, Ser. No. 157,856
Int. Cl. C08g *51/10*
U.S. Cl. 260—37 R 15 Claims

Polyphenylene ether compositions reinforced with glass fiber, are excellent in shaping processability. They are prepared by blending from 10 to 50 percent by weight of glass fiber and from 90 to 50 percent by weight of a basic resin composition, said basic resin composition consisting of from 95 to 50 percent by weight based on the basic composition of polyphenylene ether and from 5 to 50 percent by weight of based on the basic composition of amorphous polymer, e.g. styrene-acrylonitrile polymer. A 1 : 1 mixture of polyphenylene ether with polystyrene, for example, may be used in place of the polyphenylene ether.

3,708,456

POLYCONDENSATE REINFORCEMENT PROCESS USING AN INTERFACIAL-FORMING TECHNIQUE

John Louis Kardos, University City, Mo., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Sept. 18, 1970, Ser. No. 73,680
Int. Cl. C08g *51/10*
U.S. Cl. 260—37 N 10 Claims

The application provides the process of preparing fiber-reinforced condensation polymers which comprises conducting an interfacial polycondensation, without substantial stirring, in the presence of discontinuous, inorganic reinforcing fiber dispersed in the phase through which the interfacial film of polycondensate is withdrawn from the reaction zone.

3,708,457

PIGMENTED POLYOLEFIN COMPOSITIONS CONTAINING PHTHALOCYANINE COMPOUNDS

Donald G. Needham, Ramona, and George R. Hill, Bartlesville, Okla., assignors to Phillips Petroleum Company

No Drawing. Filed Feb. 16, 1971, Ser. No. 115,894
Int. Cl. C08f *45/14, 45/62*
U.S. Cl. 260—41 C 8 Claims

Resistance to deterioration on exposure to weather of pigmented polyolefin compositions is improved by the incorporation into such compositions of certain phthalocyanine compounds.

3,708,458

COPOLYIMIDES OF BENZOPHENONE TETRACARBOXYLIC ACID DIANHYDRIDE AND MIXTURE OF DIISOCYANATES

Louis M. Alberino, Cheshire, Conn.; William J. Farrissey, Jr., Northford, Conn., and James S. Rose, Guilford, Conn., assignors to The Upjohn Company, Kalamazoo, Mich.

Continuation-in-part of Ser. No. 75,667, Sept. 25, 1970, abandoned. This application March 16, 1971, Ser. No. 124,958
Int. Cl. C08g *20/32*
U.S. Cl. 260—65 5 Claims

Copolyimides are prepared from benzophenone-3,3',4,4'-tetracarboxylic acid dianhydride and a mixture of 4,4'-methylenebis(phenyl isocyanate) and toluene diisocyanate (2,4- or 2,6-isomer or mixtures thereof). The mixture of isocyanates is used in a molar percent ratio from about 10/90 to 90/10, respectively. The copolyimides so obtained show markedly improved mold flow properties and higher glass transition temperature as compared with polyimides made from 4,4'-methylenebis(phenyl isocyanate) alone. The improvement in mold flow properties in the copolyimides is achieved without any significant loss in structural strength properties; this is contrary to expectation based on the known properties of the corresponding polyimide made from toluene diisocyanate alone. The copolyimides which are obtained from the isocyanate mixtures in which the toluene diisocyanate is the major component have the additional advantage of being soluble in polar solvents and, accordingly, find use in coating compositions and the like. All the copolyimides prepared as described above can be used in the preparation of high temperature resistant polymer articles and in the various applications for which polyimides are known to be especially adapted.

3,708,459

MOLDING POWER PREPOLYMERS

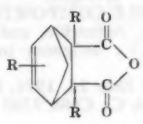
Hyman R. Lubowitz, Hawthorne, Calif., assignors to TRW Inc., Radondo Beach, Calif.

Continuation-in-part of Ser. No. 31,979, April 27, 1970, which is a continuation-in-part of Ser. No. 650,625, July 3, 1967, Pat. No. 3,528,950. This application June 24, 1970, Ser. No. 49,382

Int. Cl. C08g 20/32

U.S. Cl. 260—65 1 Claim

This invention relates to the preparation of molding powders having surface areas ranging from about 100 to 800 square meters per gram. The molding powders are obtained from a polymerizate comprising 10 to 90 percent by weight of a polyamide-acid prepolymer and 10 to 90 percent by weight of a polyimide prepolymer having average molecular weights ranging from about 500 to 6,000. The polymerizate of prepolymers are prepared by reacting approximately stoichiometric amounts of at least one polyfunctional amine, one or more polyfunctional anhydrides, and a monoanhydride characterized by the formula:



wherein R is selected from the group consisting of hydrogen and lower alkyl radicals having one to five carbon atoms per molecule and combinations thereof.

3,708,460

PROCESS FOR THE MANUFACTURE OF POLY-β-AMIDES

Walter Rupp, Niederhofheim, Taunus, and Claus Beermann, Neu Isenburg, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed July 15, 1970, Ser. No. 55,219

Claims priority, application Germany, July 24, 1969, P 19 37 663.7

Int. Cl. C08g 20/10

U.S. Cl. 260—78 L 4 Claims

To obtain β-lactams of high molecular weight by anionic polymerization the catalyst solution or suspension and simultaneously a solution of the β-lactam or mixture of β-lactams are metered into the polymerization vessel containing a solvent at a temperature of from 10 to 100° C.

3,708,461

PROCESS FOR THE VULCANIZATION OF EPIHALOHYDRIN POLYMERS

Tetsuo Karastu, Yokohama, Hiroshi Sasaki, Kawasaki, and Hideo Fukuda, Yokohama, Japan, assignors to The Japanese Geon Company Ltd., Tokyo, Japan

Filed Dec. 14, 1970, Ser. No. 97,855

Claims priority, application Japan, Dec. 15, 1969, 44/100,105

Int. Cl. C08g 23/00

U.S. Cl. 260—79 11 Claims

A process for the vulcanization of epihalohydrin polymers, which comprises heating an epihalohydrin homopolymer or a copolymer of an epihalohydrin with at least one other epoxide, in the presence of, per 100 parts by weight of the polymer, 0.2–10.0 parts by weight of at least one compound selected from the group consisting of 2-mercaptoimidazolines and thioureas which are optionally substituted with alkyl radicals of 1–4 carbon atoms leaving at least one hydrogen atom unsubstituted, and 0.2–10.0 parts by weight of at least one organic polysulfide.

3,708,462

CROSS-LINKED STYRYLPHOSPHINE RESINS

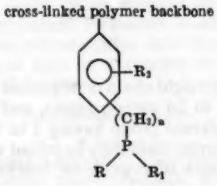
Suzanne V. McKinley, Wellesley, and Joseph W. Rakshys, Jr., Framingham, Mass., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Apr. 8, 1971, Ser. No. 132,605

Int. Cl. C08f 15/40

U.S. Cl. 260—80.71 14 Claims

Novel resins having a carbon-to-carbon backbone, cross-linked with carbon-to-carbon linkages and a plurality of pendant groups of the structure



wherein n is an integer from 0 to 3, R and R_1 are hydrocarbon groups of from 1 to 12 C atoms each, R_2 is H or up to 4 alkyl groups of 1 to 4 C atoms each, are prepared by copolymerizing a dihydrocarbyl vinyl aromatic phosphine with a polyolefinically unsaturated monomer or by copolymerizing said monomers with one or more monoolefinically unsaturated monomer which is copolymerizable with dihydrocarbyl vinyl aromatic phosphine and/or a vinyl aromatic compound. The novel cross-linked polymers can also be prepared by converting a cross-linked vinyl brominated or iodinated aromatic hydrocarbon polymer to a lithium derivative and then reacting the latter with a dihydrocarbyl halo phosphine, or reacting the lithium derivative with trimethylene oxide, then halogen, followed by lithium dihydrocarbyl phosphine.

The novel polymers have a utility for catalyzing reactions in which monomeric trihydrocarbyl phosphines act as catalysts, namely, the dimerization of alpha-beta unsaturated nitriles, carboxylic acid esters or ketones and the oligomerization or polymerization thereof under certain circumstances.

3,708,463

PROCESS FOR PREPARING VINYLIDENE FLUORIDE POLYMERS FOR COATING APPLICATIONS

John P. Stallings, Mentor, Ohio, assignor to Diamond Shamrock Corporation, Cleveland, Ohio

No Drawing. Filed Mar. 18, 1971, Ser. No. 125,851

Int. Cl. C08f 3/22

U.S. Cl. 260—92.1 8 Claims

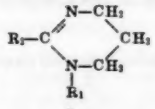
Vinylidene fluoride polymers having particular utility for dispersion coating application are prepared in an aqueous medium in the presence of a fluorinated surfactant, a lower alkylene oxide, and, as the free-radical initiator, β-hydroxyethyl tertiary butyl peroxide, while a pressure of at least 1500 p.s.i.g. is maintained on the reaction by continuously applying hydrostatic pressure. Substantial yields, i.e., at least 85% conversion, of polymer product are produced in polymerization run times of 0.5 hour to about 6 hours with minimum reactor fouling.

3,708,464
ANTISTATIC OLEFIN POLYMER COMPOSITIONS

Konrad Rombusch and Karl-Heinz Magosch, Marl, Germany, assignors to Chemische Werke Huls Aktiengesellschaft, Marl, Germany

No Drawing. Filed Dec. 4, 1970, Ser. No. 95,373
Claims priority, application Germany, Dec. 16, 1969, P 19 62 921.1
The portion of the term of the patent subsequent to Oct. 31, 1989, has been disclaimed
Int. Cl. C08f *29/02, 29/04*
U.S. Cl. 260—93.7 11 Claims

Antistatic olefin polymer compositions and molded articles of normally solid olefin polymers having uniformly and intimately distributed therein from 0.01 to 1.0 percent by weight of a tetrahydropyrimidine having the formula—

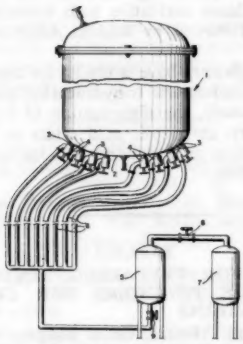


wherein R_1 is a straight chain or branched alkyl or alkenyl group having 6 to 26 carbon atoms, and R_2 is hydrogen or an alkyl or alkenyl group having 1 to 5 carbon atoms. The tetrahydropyrimidines may be mixed with up to molar equivalent amounts of organic or inorganic acids.

3,708,465
METHOD AND APPARATUS FOR INTERRUPTING THE POLYMERIZATION OF OLEFINS

Johannes Dietrich, Oswald Wolff, Hermann Amrehn, and Gunter Beckmann, Marl, Germany, assignors to Chemische Werke Huls Aktiengesellschaft, Marl, Germany

Filed Jan. 12, 1971, Ser. No. 105,871
Claims priority, application Germany, Jan. 13, 1970, P 20 01 183.0
Int. Cl. C08f *1/82, 3/00*
U.S. Cl. 260—93.7 10 Claims



An apparatus and method for interrupting the polymerization of ethylene, propylene, or 1-butene having a polymerization catalyst comprising a mixture of an aluminum-organic compound with a salt, freshly precipitated oxide or hydroxide of metals of Groups IV–B, V–B or VI–B of the Periodic System, including thorium and uranium which comprises adding to a suspension of the olefin and catalyst about 15 to 100 mole percent of a deactivator comprising an organic compound which contains oxygen, an organic compound which contains oxygen and hydrogen, an organic compound which contains hydrogen, hydrogen halide or water, relative to the allkyl group and/or hydride group bonded to the aluminum of the aluminum-organic compound.

3,708,466
LAUNDRY SIZE FOR POLYESTER-COTTON BLENDS OF FABRIC

Frank R. Kappler and John J. Cramer, Wyandotte, Mich., assignors to BASF Wyandotte Corporation, Wyandotte, Mich.

No Drawing. Filed Mar. 19, 1971, Ser. No. 126,341
Int. Cl. C08f *45/18;* C10m *3/48*
U.S. Cl. 260—17.4 ST 6 Claims

An improved laundry size for fabrics composed of polyester and cotton fibers is described. The aqueous size contains unmodified starch, thermoplastic polymeric emulsion, a surfactant and a laundry sour. The size imparts a finish and a stiffness to fabrics containing blends of cotton and polyester which hereto was not pertainable by conventional laundry sizes.

3,708,467
CURABLE COMPOSITIONS

Alfred H. Smith, Jr., Jonesville, and Melvin D. Beers, Ballston Lake, N.Y., assignors to General Electric Company

No Drawing. Filed June 16, 1971, Ser. No. 153,811
Int. Cl. C08h *9/00*
U.S. Cl. 260—185 3 Claims

Fluid organopolysiloxanes which are vulcanizable at room temperature to silicone elastomers are prepared by mixing a novel co-catalyst such as a mixture of dibutyl tin dimethoxide and propanedioxy bis(ethylacetoacetate) complex of titanium, a cross-linking agent such as methyltrimethoxysilane and a silanol chain-stopped polydiorganosiloxane fluid in the absence of moisture. Viscosity depressants such as low molecular weight polysiloxane diols and adhesion promoters such as 1,3,5-tris(trimethoxysilylpropyl)isocyanurate may optionally be present.

These compositions are stable, free-flowing fluids in the absence of moisture but cure to the rubbery solid elastic state upon exposure to moisture. The compositions are particularly useful as adhesives and sealants in the construction of electronic equipment in that they do not give off corrosive by-products when curing. They are also useful in the formation of orthopedic devices cast on the human foot.

3,708,468
DISPERSE PHENYL-AZO-PHENYL DYES

Rasso Hahn, Basel, and Curt Mueller, Binningen, Switzerland, assignors to Sandoz Ltd., Basel, Switzerland

No Drawing. Filed Apr. 14, 1969, Ser. No. 816,011
Int. Cl. C07c *107/06;* C09b *29/08*
U.S. Cl. 260—207 6 Claims

2-halogeno-4-nitro-2'-acylamino - 4' - (dialkyl)-amino-1,1'-azobenzene dyes are suitable for dyeing fibres consisting of hydrophobic organic substances of high molecular weight and materials made of these fibres. Resulting dyeings are of red shade, have good fastness properties, good wool reserve and dischargeability and stability to action of soil release finishes and permanent press finishing processes.

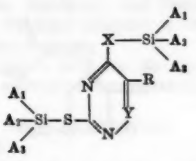
3,708,469
2-THIOPYRIMIDINE NUCLEOSIDES

Helmut Vorbruggen and Peter Strehlke, Berlin, Germany, assignors to Schering AG, Berlin, Germany

No Drawing. Filed Sept. 15, 1969, Ser. No. 858,163
Claims priority, application Germany, Sept. 18, 1969, P 17 95 357.0
Int. Cl. C07d *51/52*
U.S. Cl. 260—211.5 R 25 Claims

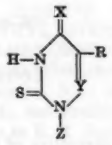
2-thiopyrimidine nucleosides exhibiting cytotoxic, antiviral, enzyme-inhibiting as well as antihyperthyroid effects

are obtained by a novel process comprising reacting a silyl compound of the formula



I

with a masked halogen sugar and then splitting off the blocking groups, the final compounds being of the formula



II

wherein

X is O or NH,
Y is N or CH,
R is H, alkyl of 1–4 carbon atoms, halogen, nitro, nitrile, lower alkylamino lower alkoxy, or the group

$$-(CH_2)_n-CO-A$$

wherein *n* is O, 1 or 2 is O-alkyl of 1–5 carbon atoms, NH_2 or lower alkylamino, and
Z is a sugar residue,

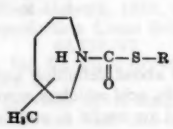
and wherein in Formula I A_1, A_2 and A_3 represent lower alkyl.

3,708,470
SEALANTS
Colin David Hall, Portsmouth, England, assignor to Ralli Bondite Limited, Portsmouth, England
No Drawing. Filed Sept. 15, 1970, Ser. No. 72,858
Claims priority, application Great Britain, June 23, 1970, 30,539/70
Int. Cl. C08c *11/22, 11/72;* **C08d** *9/00, 13/00*
U.S. Cl. 260—23.7 M **9 Claims**

A sealant is made by compounding a gelled drying or semi-drying oil with an elastomer and vulcanizing the mixture. The gelling of the oil may be accomplished during the compounding step by selecting a gelling agent effective at the compounding temperature.

3,708,471
S-ALKYL-(METHYLHEXAHYDRO-1H-AZEPINE)-1-CARBOTHIOLATES
Wolfgang Rohr, Mannheim, Karl-Heinz Koenig, Frankenthal, and Adolf Fischer, Mutterstadt, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed Feb. 2, 1970, Ser. No. 8,038
Claims priority, application Germany, Feb. 7, 1969, P 19 06 050.5
Int. Cl. A01n *9/12;* **C07d** *41/04*
U.S. Cl. 260—239 BF **4 Claims**

S-alkyl-(methylhexahydro - 1H - azepine)-1-carbothiolates having the formula



where R denotes an aliphatic radical which may bear one or more halogen atoms or hydroxyl groups as substituents or an araliphatic radical, these compounds being of value for controlling the growth of unwanted plants among useful crop plants.

3,708,472
PROCESS FOR CLEAVING 2-NITROCYCLOHEXANONE USING 6-AMINOCAPROIC ACID AS A CATALYST
Philip M. Pivawer, Hamden, Conn., assignor to The Techni-Chem Company, Wallingford, Conn.
No Drawing. Filed Oct. 14, 1970, Ser. No. 80,814
Int. Cl. C07d *41/06*
U.S. Cl. 260—239.3 A **8 Claims**

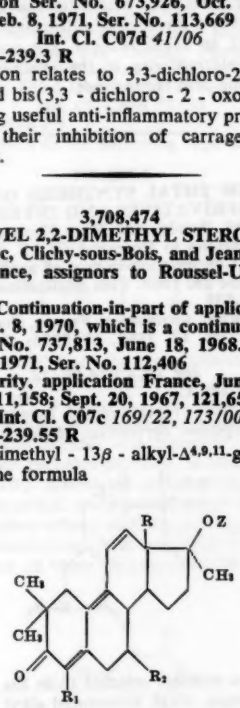
2-nitrocyclohexanone is cleaved in the presence of 6-aminocaproic acid as a catalyst. 6-nitrocaproic acid is produced which can be reduced with hydrogen to 6-aminocaproic acid and the latter cyclized to caprolactam by heating in fairly dilute aqueous solution, less than 25%. The caprolactam formation is an equilibrium reaction and some aminocaproic acid remains, which can be separated and used as a catalyst in the cleavage of the 2-nitrocyclohexanone.

3,708,473
3,3-DICHLORO-2-OXOPOLYMETHYLENIMINES
Joseph C. Collins, East Greenbush, N.Y., assignor to Sterling Drug Inc., New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 862,084, Sept. 29, 1969, which is a continuation-in-part of application Ser. No. 673,926, Oct. 9, 1967. This aplication Feb. 8, 1971, Ser. No. 113,669
Int. Cl. C07d *41/06*
U.S. Cl. 260—239.3 R **21 Claims**

The invention relates to 3,3-dichloro-2-oxopolymethylenimines and bis(3,3 - dichloro - 2 - oxopolymethylenimines) having useful anti-inflammatory properties as determined by their inhibition of carrageenan induced edema in rats.

3,708,474
NOVEL 2,2-DIMETHYL STEROIDS
Lucien Nedelec, Clichy-sous-Bois, and Jean-Claude Gasc, Bondy, France, assignors to Roussel-UCLAF, Paris, France
No Drawing. Continuation-in-part of application Ser. No. 96,254, Dec. 8, 1970, which is a continuation of application Ser. No. 737,813, June 18, 1968. This application Feb. 3, 1971, Ser. No. 112,406
Claims priority, application France, June 20, 1967, 111,158; Sept. 20, 1967, 121,655
Int. Cl. C07c *169/22, 173/00*
U.S. Cl. 260—239.55 R **12 Claims**

2α,2β,17α-trimethyl - 13β - alkyl-$\Delta^{4,9,11}$-gonatriene-17β-ol-3-ones of the formula



I

wherein Z is hydrogen, alkyl of 1 to 6 carbon atoms or tetrahydropyranyl, R is alkyl of 1 to 4 carbon atoms, R_1 is selected from the group consisting of hydrogen, hydroxy, lower alkanoyloxy of 1 to 7 carbon atoms and halogen, and R_2 is hydrogen, alkyl of 1 to 4 carbon atoms, having anti-androgenic activity and their preparation.

3,708,475

PROCESS FOR THE PRODUCTION OF CHLORINE-CONTAINING v-TRIAZOLE COMPOUNDS

Rudolf Kirchmayr, Binningen, Basel-Land, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Filed June 3, 1970, Ser. No. 43,209
Int. Cl. C07d 55/02
U.S. Cl. 260—240 C 2 Claims

2,4-disubstituted -5-chloro-v-triazoles are produced by reacting a 2,4-disubstituted-v-triazole-1-oxide with sulphuryl chloride and reducing the 2,4-disubstituted-5-chloro-v-triazole-1-oxide obtained with nascent hydrogen. The v-triazoles are brighteners for high-molecular organic materials.

3,708,476

AZETIDINO-THIAZOLIDINEMETHANE CARBOXYLIC ACIDS AND PROCESS FOR THEIR MANUFACTURE

Robert Burns Woodward, 12 Oxford St., Cambridge, Mass. 02138

No Drawing. Continuation-in-part of abandoned application Ser. No. 573,866, Aug. 22, 1966. This application Dec. 4, 1969, Ser. No. 882,301
Claims priority, application Switzerland, Dec. 9, 1965, 16,928/65, 16,979/65; Jan. 13, 1966, 451/66
Int. Cl. C07d 99/24
U.S. Cl. 260—243 C 16 Claims

Process which comprises reacting an N_1-unsubstituted 4,4-disubstituted 3-acyl-azetidino[3,2-d]thiazolidin-2-one compound with a diformylmethylene-methane carboxylic acid ester and splitting in a resulting 4,4-disubstituted 3-acyl-α-diformylmethyl-2-oxo-1 - azetidino[3,2 - d]thiazolidinemethane carboxylic acid ester the 5-membered and forming a new 6-membered sulfur-nitrogen ring upon treatment with an acidic reagent. The compounds of the process are intermediates in the synthesis of 7-aminocephalosporanic acid compounds.

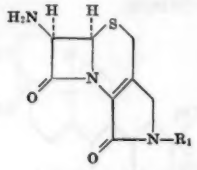
3,708,477

PROCESS OF TOTAL SYNTHESIS OF CEPHALOSPORIN DERIVATIVES AND INTERMEDIATES

Jacques Martel, Bondy, and Rene Heymes, Romainville, France, assignors to Roussel-UCLAF, Paris, France

No Drawing. Continuation-in-part of application Ser. No. 836,975, June 26, 1969. This application Oct. 16, 1970, Ser. No. 81,539
Claims priority, application France, June 27, 1968, 156,898; Oct. 17, 1969, 6935596; Oct. 22, 1969, 6936248
Int. Cl. C07d 99/24
U.S. Cl. 260—243 C 20 Claims

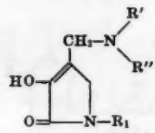
Process for the preparation of racemic or optically-active cephalosporine derivatives of the formula



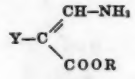
wherein R_1 is a member selected from the group consisting of hydrogen, alkyl, substituted alkyl, aryl and substituted aryl,
which comprises the steps of reacting an amino acid of the formula

$$R_1—NH—CH_2—CH_2—COOH$$

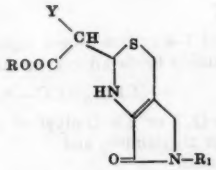
with benzyl alcohol, condensing the benzyl ester thus obtained with an oxalate, converting the benzyl ester of 2,3-dioxo-4-carboxy-pyrrolidine into the corresponding acid, subjecting said acid to aminomethylation, thus yielding a compound of the formula



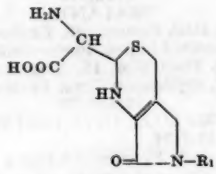
converting said compound into the corresponding 4-acylthiomethyl derivative, converting said derivative into the corresponding 4-thiomethyl derivative, condensing said derivative with an enamine of the formula



to obtain a thiazine derivative of the formula

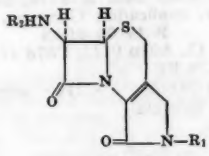


converting said thiazine derivative into a compound of the formula



subjecting said compound to the action of a tritylation agent, recovering the threo isomer of the tritylated derivative, lactamizing said threo isomer to obtain the γ-lactam of DL - 6H,7H - cis - 7 - tritylamino-3-aminomethyl-ceph-3-eme-4-carboxylic acid, detritylating said γ-lactam and recovering said racemic or optically active cephalosporin derivatives.

These compounds are useful as intermediates in the preparation of the corresponding 7acylamino derivatives of the formula



wherein R_1 has the above definition and R_2 is the acyl of an organic carboxylic acid which compounds are also part of the invention and are useful as antibiotics.

3,708,478

CRYSTALLINE COMPLEX OF CEPHALORIDINE WITH AN ALKANE DIOL

John H. Chapman, Middlesex, and Susan E. Staniforth, London, both of England, assignors to Glaxo Laboratories Limited, Middlesex, England

Filed July 7, 1970, Ser. No. 53,020
Claims priority, application Great Britain, July 24, 1967, 37,298/69
Int. Cl. C07d *99/24*
U.S. Cl. 260—243 C 10 Claims

A crystalline solvate of cephaloridine with certain alkane diols, e.g., propane -1,3-diol, butane -1,3-diol and butane -2,3-diol, a process for the preparation of such solvates and pharmaceutical compositions containing the solvates.

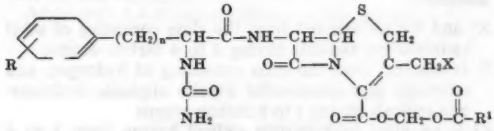
3,708,479

ACYLOXYMETHYL ESTERS OF ALPHA-UREIDOCYCLO-HEXADIE NYLALKYLENE-CEPHALOSPORINS

Arnold D. Welch, Princeton, N.J.; Joseph Edward Dolfini, North Brunswick, N.J., and Frederick F. Giarrusso, Belle Mead, N.J., assignors to E. R. Squibb & Sons, Inc., New York, N.Y.

Filed Oct. 26, 1970, Ser. No. 84,170
Int. Cl. C07d *99/24*
U.S. Cl. 260—243 C 7 Claims

New acyloxymethyl esters of α-ureidocyclohexadienylalkylene-cephalosporins of the general formula



are effective as antibacterial agents and show prolonged action as well as other improved results.

3,708,480

3-CYANOMETHYL-DELTA-3-CEPHALOSPORIN ANTIBIOTICS AND INTERMEDIATES

J. Alan Webber and Earle M. Van Heyningen, Indianapolis, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

No Drawing. Continuation-in-part of applications Ser. No. 790,842, Jan. 13, 1969, and Ser. No. 802,643, Feb. 26, 1969, both being continuations-in-part of application Ser. No. 703,523, Feb. 7, 1968. This application Nov. 16, 1970, Ser. No. 90,085
Int. Cl. C07d *99/24*
U.S. Cl. 260—243 C 7 Claims

Certain 3-cyanomethyl, 3-oxymethyl, and 3-thiomethyl ether Δ^3-cephem-4-carboxylic acids, zwitterions, salts, and esters, e.g., p-methoxybenzyl 7-amino-3-cyanomethyl-Δ^3-cephem-4-carboxylate, a nucleus ester, and 7-[D-α-amino-α-phenylacetamido]-3 - methoxymethyl-Δ^3-cephem-4-carboxylic acid, and 7 - [D-α-amino-α-phenylacetamido]-3-methylthiomethyl-Δ^3-cephem-4-carboxylic acid, new cephalosporin antibiotics.

3,708,481

2-ANILINO-NICOTINIC ACID ESTERS

Charles Hoffmann, Enghien-les-Bains, France, assignor to Societe Anonyme dite: Hexachimie Gennevilliers, Hauts-de-Seine, France

No Drawing. Filed Oct. 18, 1968, Ser. No. 768,903
Claims priority, application Great Britain, Oct. 23, 1967, 48,138/67
Int. Cl. C07d *87/40*
U.S. Cl. 260—247.2 B 4 Claims

The invention provides novel aminoalkyl esters of 2-anilino-nicotinic acids and their non-toxic salts which are useful anti-inflammatories, antipyretic agents, analgesics, and local anaesthetics.

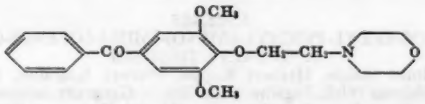
3,708,482

4-MORPHOLINOETHOXY-BENZOPHENONES

Francesco Lauria, Milan, Vittorio Vecchietti, Pavia, and Willy Logemann, Milan, Italy, assignors to Carlo Erba S.p.A., Milan, Italy

No Drawing. Filed Apr. 10, 1970, Ser. No. 27,432
Claims priority, application Italy, Apr. 15, 1969, 15,572/69
Int. Cl. C07d *87/34*
U.S. Cl. 260—247.7 C 6 Claims

Basic ethers are disclosed, for instance of the formula:



methods of preparation for these ethers are also disclosed; for example by the reaction of the sodium salt of dimethylformamide with 3,5-dimethoxy-4-hydroxybenzophenone in the reaction solvent dimethylformamide. These basic ethers have been found to exhibit anti-tussive activity.

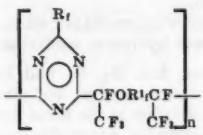
3,708,483

SYNTHESIS OF POLYMERS FROM S-TRIAZINES AND PERFLUORO-VINYL ETHERS

Richard W. Anderson, Midland, and Hughie R. Frick, Williams Township, Bay County, Mich., assignors to The Dow Chemical Company, Midland, Mich.

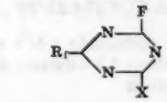
No Drawing. Filed Oct. 31, 1968, Ser. No. 772,426
Int. Cl. C07d *55/50*
U.S. Cl. 260—248 CS 5 Claims

Novel polymers of the following type are provided:



where R_f is selected from the group consisting of normal and branched chain perhaloalkyl and perhaloalkyl ether groups; where R^1_f is selected from the group consisting of perhalomethylene, perhalopolymethylene, perhalopolymethylene ethers, normal and branched chain perhaloalkyl substituted perhalomethylene, normal and branched chain perhaloalkyl substituted perhalopolymethylene, and normal and branched chain perhaloalkyl substituted perhalopolymethylene ethers, and where *n* represents the degree of polymerization. Also provided is a process for the preparation of these polymers which comprises the reaction of

(A)



where R_f is as defined above and X is independently selected from the group consisting of F or R_f, with (B) $CF_2=CFOR^1_fOCF=CF_2$, where R^1_f is as defined above, in the presence of an alkyl metal fluoride. When X is R_f, the diadduct will be formed.

3,708,484

AMINO AND SUBSTITUTED AMINO-s-TRIAZOLO-[4,3-b]-PYRIDAZINES

Paul L. Anderson, Dover, and William J. Houlihan and Robert E. Manning, Mountain Lakes, N.J., assignors to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Filed Oct. 16, 1970, Ser. No. 81,522
Int. Cl. C07d *51/04*
U.S. Cl. 260—250 A 3 Claims

Amino and substituted amino-s-triazolo-[4,3-b]-pyridazines, e.g., 8-allylamino-3-amino-6-chloro-s-triazolo-[4,3-b]-pyridazine, exhibit anti-depressant and anti-inflammatory activity and are prepared by treating 4-amino and substituted amino-3-hydrazino pyridazines or 4-amino and substituted amino-6-hydrazino pyridazines with cyanogen halide.

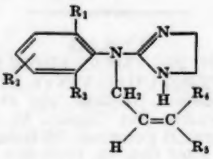
3,708,485

2-(N-ALLYL-PHENYLAMINO)-IMIDAZOLINES-(2) AND SALTS THEREOF

Helmut Stahle, Herbert Koppe, Werner Kummer, and Helmut Wick, Ingelheim am Rhein, Germany, assignors to Boehringer Ingelheim GmbH, Ingelheim am Rhein, Germany

No Drawing. Filed Nov. 12, 1970, Ser. No. 88,982
Claims priority, application Germany, Nov. 19, 1969, P 19 58 201.5
Int. Cl. C07d *49/34*
U.S. Cl. 260—254 21 Claims

Compounds of the formula



wherein

R_1 is hydrogen, chlorine, methyl, ethyl, methoxy or trifluoromethyl,

R_2 is hydrogen, chlorine, bromine, fluorine, methyl, methoxy or cyano,

R_3 is hydrogen, chlorine, methyl or ethyl, and

R_4 and R_5 are each hydrogen, methyl or chlorine,

provided, however, that R_1, R_2 and R_3 are other than all hydrogen at the same time and that R_4 and R_5 are other than both chlorine at the same time, and their non-toxic, pharmacologically acceptable acid addition salts; the compounds as well as their salts are useful as analgesics and hypotensives.

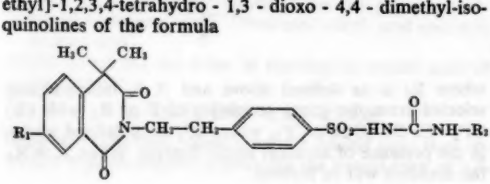
3,708,486

2 - [p - (N'-CYCLOALKYL-CARBAMIDO-N-SULFONYL)-PHENETHYL] - 1,2,3,4-TETRAHYDRO-1,3 - DIOXO - 4,4-DIMETHYL-ISOQUINOLINES AND ALKALI METAL SALTS THEREOF

Eberhard Kutter, Gerhart Griss, Wolfgang Grell, and Manfred Kleemann, Biberach an der Riss, Germany, assignors to Boehringer Ingelheim GmbH, Ingelheim am Rhein, Germany

No Drawing. Filed Apr. 6, 1970, Ser. No. 26,072
Claims priority, application Germany, Apr. 17, 1969, P 19 19 570.1; Jan. 5, 1970, P 20 00 339.8
Int. Cl. C07d *35/30*
U.S. Cl. 260—281 7 Claims

2-[p-(N'-cycloalkyl - carbamido - N - sulfonyl) - phenethyl]-1,2,3,4-tetrahydro - 1,3 - dioxo - 4,4 - dimethyl-isoquinolines of the formula



wherein

R_1 is hydrogen, chlorine, bromine or alkoxy of 1 to 4 carbon atoms, and

R_2 is cyclohexyl or adamantyl-(1),

and alkali metal salts thereof, useful as hypoglycemics in warm-blooded animals.

3,708,487

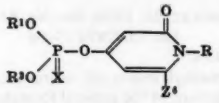
CERTAIN 2[1H]PYRIDON-4-YL PHOSPHATES AND PHOSPHOROTHIONATES

Norman C. Brown and Gerald S. Poll, Berkhamsted, England, assignors to Cooper, McDougall & Robertson Limited, Berkhamsted, England

No Drawing. Filed Oct. 18, 1967, Ser. No. 676,046
Claims priority, application Great Britain, Oct. 25, 1966, 47,933/66
Int. Cl. C07d *31/50*
U.S. Cl. 260—294.8 K 10 Claims

This invention relates to novel compounds which are toxic to a variety of arthropod pests.

In particular this invention relates to compounds of the following formula which exhibit the above mentioned activity



wherein

R^1 and R^2 are selected from the class consisting of alkyl hydrocarbon radicals having 1 to 4 carbon atoms;

R is selected from the class consisting of hydrogen, and saturated and unsaturated acyclic aliphatic hydrocarbon radicals having 1 to 6 carbon atoms;

Z^6 is an alkyl hydrocarbon radical having from 1 to 4 carbon atoms; and

X is selected from the class consisting of oxygen and sulphur.

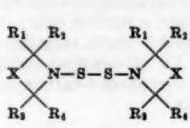
3,708,488

PROCESS FOR THE PREPARATION OF N,N'-DISULFIDE COMPOUNDS

Keisuke Murayama, Syoji Morimura, Susumu Higashida, Katsuaki Matsui, Tomoyuki Kurumada, and Noriyuki Onta, Tokyo, Japan, assignors to Sankyo Company Limited

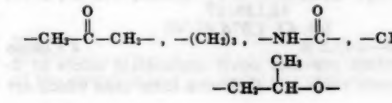
No Drawing. Filed May 24, 1971, Ser. No. 146,527
Claims priority, application Japan, May 26, 1970, 45/45,067
Int. Cl. C07d *29/36*
U.S. Cl. 260—293.63 7 Claims

Improved and commercially advantageous process for the preparation of an N,N'-disulfide compound having the formula

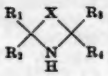


(I)

wherein R_1, R_2, R_3 and R_4 may be the same or different and each represents an alkyl group of 1 to 4 carbon atoms or R_1 and R_2 or R_3 and R_4, together with the carbon atom to which they are attached, may form a 5- or 6-membered saturated alicyclic group; and X represents the group



which comprises reacting a compound having the formula



(II)

wherein R_1, R_2, R_3, R_4 and X are as defined above with sulfur monochloride in the presence of a metal salt of an organic carboxylic acid as an acid-binding agent in an acid amide or nitrile solvent and, optionally, in the further presence of an acidic dehydrating agent, e.g., phosphoric anhydride. The N,N'-disulfide compounds having the above Formula I are useful, for instance, as a stabilizer of various synthetic polymers, especially polyurethane elastomers against their deteriorations by light, heat and chlorine.

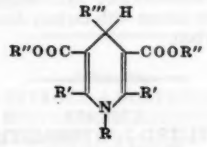
3,708,489

AZIDO-ARYL 1,4-DIHYDROPYRIDINES AND THEIR PRODUCTION

Dietrich Rucker, Bietigheim, Frederich Bossert and Horst Meyer, Wuppertal-Elberfeld, and Wulf Vater, Opladen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Mar. 17, 1971, Ser. No. 125,427
Claims priority, application Germany, Mar. 20, 1970, P 20 13 431.0
Int. Cl. C07d *31/36*
U.S. Cl. 260—295.5 R **35 Claims**

Azido-aryl 1,4-dihydropyridines of the formula:



wherein

R is hydrogen, straight, branched or cyclic lower alkyl, lower alkenyl or lower alkinyl, unsubstituted or substituted by hydroxyl or alkoxy of 1 to 3 carbon atoms; or benzyl, or phenethyl, unsubstituted or substituted in the aryl portion by 1 to 3 members selected from the group consisting of 1 to 3 alkoxy moieties of 1 to 3 carbon atoms, 1 or 2 alkyl moieties of 1 to 3 carbon atoms, and 1 or 2 halogen atoms;

R' is straight or branched chain alkyl of 1 to 4 carbon atoms;

R'' is straight, branched or cyclic lower alkyl, lower alkenyl or lower alkinyl, straight, branched or cyclic lower alkyl, lower alkenyl or lower alkinyl, the carbon atom chain or ring of which is interrupted by 1 or 2 oxygen atoms or straight, branched or cyclic lower alkyl, lower alkenyl or lower alkinyl substituted by hydroxyl or substituted by hydroxyl and the carbon atom chain or ring of which is interrupted by 1 or 2 oxygen atoms; and

R''' is aryl substituted by an azido moiety and further unsubstituted or substituted by 1 or 2 members selected from the group consisting of 1 or 2 alkyl moieties of 1 to 4 carbon atoms, 1 or 2 fluoroalkyl moieties of 1 to 4 carbon atoms, 1 or 2 alkoxy moieties of 1 to 4 carbon atoms and 1 or 2 halogen atoms,

are useful for their coronary dilating effect, their nitrite-like effect on the heart, their anti-fibrillation effect, their vascular-spasmolytic effect and muscular-spasmolytic effect, and as anti-hyptensives.

3,708,490

IMIDAZOTHIAZOLIUM COMPOUNDS, PREPARATION AND METHOD OF USE

Larry Dean Spicer, R.D. 1, P.O. Box 381, Princeton, N.J. 08540, and John James Hand, 18 Lawnside Drive, Trenton, N.J. 08638

No Drawing. Continuation-in-part of abandoned application Ser. No. 3,220, Jan. 15, 1970. This application Nov. 16, 1970, Ser. No. 90,141
Int. Cl. C07d *99/10*
U.S. Cl. 260—306.8 F **7 Claims**

The preparation of acyl substituted phenylimidazo-[2,1-b]thiazoles is described. They are prepared by acylation of phenylimidazo[2,1-b]thiazoles with an acyl halide or anhydride. They can also be prepared by cyclization of the appropriate substituted thiazole to produce the desired phenylimidazo[2,1-b]thiazoles. The latter compounds are useful for the control of helminths in warm-blooded animals.

3,708,491

2-AMINO(PERFLUOROALKYLSULFONAMIDO-PHENYL)THIAZOLES

Joseph K. Harrington, Edina, Donald C. Kvam, North Oaks, Arthur Mendel, Vadnais Heights, and Jerry E. Robertson, North Oaks, Minn., assignors to Riker Laboratories, Inc., Northridge, Calif.

No Drawing. Continuation-in-part of application Ser. No. 837,900, June 30, 1969, which is a continuation-in-part of application Ser. No. 588,338, Oct. 21, 1966. This application May 11, 1971, Ser. No. 142,380
Int. Cl. C07d *91/34*
U.S. Cl. 260—306.8 R **4 Claims**

N-substituted perfluoroalkanesulfonamides in which the sulfonamide nitrogen substituent is (2-aminothiazolyl) phenyl. Also included are processes for the preparation and use of said compounds. The compounds are active as antimicrobial agents and polymerization catalysts.

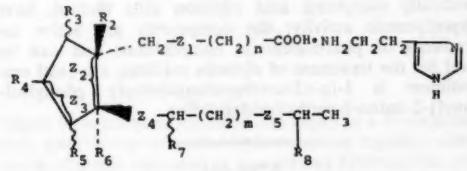
3,708,492

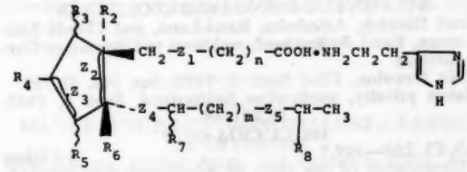
IMIDAZOLYL PROSTAGLANDIN COMPOUNDS

Alejandro Zaffaroni, Atherton, Calif., assignor to Alza Corporation

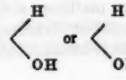
No Drawing. Filed Sept. 23, 1970, Ser. No. 74,875
Int. Cl. C07d *49/36*
U.S. Cl. 260—309 **15 Claims**

Compounds of the formulae:



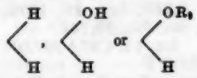


wherein R_3 and R_6 are hydrogen when Z_2 is a single bond and R_2 and R_6 are absent when Z_2 is a double bond: R_3 is keto,



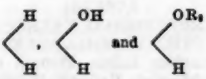
R_4 is hydrogen or

R_5 is hydrogen,



R_7 is hydroxyl or OR_9; R_8 is hydrogen or hydroxyl; R_9 is an acyl or an alkoxyalkyl; Z_1 is $-CH_2CH_2-$ or cis $-CH=CH-$; Z_2 is a single bond or a double bond; Z_3 is a single bond when R_4 is

and R_5 is



and Z_3 is a double bond when R_4 and R_5 are hydrogen; Z_4 is $-CH_2CH_2-$ or trans $-CH=CH-$; Z_5 is $-CH_2CH_2-$ or cis $-CH=CH-$; and wherein n is 2 to 5 and m is 1 to 3. The new imidazolyl prostaglandin compounds have improved biological stability and they can serve as a reservoir for the prostaglandins per se that have biological activities such as stimulating or inhibiting smooth muscles, inhibiting gastric secretion, lowering or raising blood pressure, inhibiting lipolysis and inhibiting platelet aggregation.

3,708,493

p-(ACETOACETAMIDOALKYL) BENZENESULFONAMIDE DERIVATIVES

Henri Dietrich, Arlesheim, Basel-Land, and Claude Lehmann, Basel, Switzerland, assignors to Ciba-Geigy Corporation

No Drawing. Filed Sept. 1, 1970, Ser. No. 68,797
Claims priority, application Switzerland, Sept. 4, 1969, 13,396/69
Int. Cl. C07d *49/30*
U.S. Cl. 260—309.7 **3 Claims**

Compounds of the class of 1-[p-(acetoacetamidoalkyl)-phenylsulfonyl]-2-imino-imidazolidines and the pharmaceutically acceptable acid addition salts thereof, have hypoglycemic activity; the compounds are active ingredients of pharmaceutical compositions and can be used for the treatment of diabetes mellitus; a typical embodiment is 1-[p-(2-acetoacetamidoethyl) - phenylsulfonyl]-2-imino-3-methylimidazolidine.

3,708,494

DERIVATIVES OF p-AMINOALKYLPHENYLSULFONYL-2-IMINO-IMIDAZOLIDINES

Henri Dietrich, Arlesheim, Basel-Land, and Claude Lehmann, Basel, Switzerland, assignors to Ciba-Geigy Corporation

No Drawing. Filed Sept. 1, 1970, Ser. No. 68,798
Claims priority, application Switzerland, Sept. 4, 1969, 13,401/69
Int. Cl. C07d *49/30*
U.S. Cl. 260—309.7 **3 Claims**

Compounds of the class of substituted p-aminoalkylphenylsulfonyl-2-imino-imidazolidines and the pharmaceutically acceptable acid addition salts thereof have hypoglycemic activity; these compounds are active ingredients of pharmaceutical compositions and are useful for the treatment of diabetes mellitus; a typical embodiment is 1 - [p - [2 - (ethoxycarbonylamino)-ethyl]-phenylsulfonyl]-2-imino-3-cyclohexyl-imidazolidine.

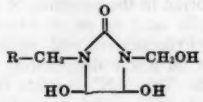
3,708,495

1-CYCLOALKENYLMETHYL-4,5-DIHYDROXY-3-HYDROXYMETHYL-2-IMIDAZOLIDINONES

George W. Borden, Charleston, and David J. Trecker, South Charleston, W. Va., assignors to Union Carbide Corporation, New York, N.Y.

No Drawing. Filed Apr. 9, 1970, Ser. No. 27,144
Int. Cl. C07d *49/30*
U.S. Cl. 260—309.7 **3 Claims**

Compounds represented by the formula:



wherein R is cyclo-alkenyl or bicyclo-alkenyl containing 5 to 8 carbon atoms. The compounds have utility as durable press additives for textile fabrics.

3,708,496

PROCESS FOR PREPARING 1,3-DISUBSTITUTED SYMMETRICAL THIOUREAS

Hilde Kersten, Hellrain 1, Trennfurt, Germany; Gunter Heinrichs, Bechtoldstr. 20, Aschaffenburg, Germany; Gerhard Meyer, Blumenstr. 26, Obernburg, Germany; and Dieter Laudien, Menzelstr. 52, Wuppertal, Germany

No Drawing. Filed Mar. 25, 1971, Ser. No. 128,120
Claims priority, application Germany, Mar. 28, 1970, P 20 15 010.1
Int. Cl. C07c *157/06*
U.S. Cl. 260—309.7 **14 Claims**

Process for the preparation of aliphatically and cycloaliphatically 1,3-disubstituted symmetrical thioureas by reacting a primary amine with carbon disulfide in the presence of active carbon.

3,708,497

1-SUBSTITUTED-2-NITROMETHYLENE-PYRROLIDINES

Takashi Kamiya, Suita, and Masashi Hashimoto, Toyonaka, Japan, assignors to Societe d'Etudes Scientifiques et Industrielles de l'Ile-de-France, Paris, France

No Drawing. Continuation-in-part of abandoned application Ser. No. 850,234, Aug. 14, 1969. This application July 14, 1971, Ser. No. 162,647
Claims priority, application Japan, Aug. 19, 1968, 43/59,377; May 20, 1969, 44/38,886; June 9, 1969, 44/45,174
Int. Cl. C07d *27/04*
U.S. Cl. 260—326.8 **8 Claims**

1-alkyl-2-aminomethylpyrrolidines and 1-benzyl-2-aminomethyl-pyrrolidines are utilized for the production of pharmaceuticals. The presently used process for producing such compounds involves significant contamination by undesired by-products. The process of this invention avoids such contamination by the utilization of novel intermediates.

3,708,498

RECOVERY OF PURE CIS 11-(3-DIMETHYLAMINOPROPYLIDENES) - 6,11 - DIHYDROBENZ (b,e) OXEPINE FROM ADMIXTURE WITH ITS TRANS ISOMER

Susumu Nakanishi, East Lyme, Conn., assignor to Pfizer Inc., New York, N.Y.

No Drawing. Filed Nov. 4, 1970, Ser. No. 87,019
Int. Cl. C07d *9/00*
U.S. Cl. 260—333 **2 Claims**

Recovery of pure cis 11-(3-dimethylaminopropylidene)-6,11-dihydrodibenz (b,e) oxepine from admixture with its trans isomer is described.

3,708,499
RHODAMINE DYES WHICH ARE SPARINGLY SOLUBLE OR INSOLUBLE IN WATER

Franz Andree, Ludwigshafen, Hans Burkhardt, Limburgerhof, and Guenther Riedel, Mannheim, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Original application Aug. 14, 1968, Ser. No. 752,505. Divided and this application Nov. 20, 1970, Ser. No. 91,533

Int. Cl. C07d *7/42*

U.S. Cl. 260—336 **1 Claim**

Rhodamine dyes having anions which render them insoluble in water and which make them especially useful in printing inks, ball point pen inks or, for example, transparent surface coatings.

3,708,500
ARYL KETALS OF POLYCYCLIC OXO COMPOUNDS AND PROCESSES

Michael Rosenberger, Bloomfield, and Gabriel Saucy, Essex Fells, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Continuation-in-part of applications Ser. No. 824,319, May 13, 1969, now Patent No. 3,544,600, and Ser. No. 825,389, May 16, 1969, now abandoned. This application Feb. 12, 1970, Ser. No. 11,023

Int. Cl. C07d *13/10*

U.S. Cl. 260—340.5 **11 Claims**

The intermediates and processes of this disclosure provide a new stereo-specific total synthesis of steroidal materials having known valuable pharmacological properties. A fundamental feature of this disclosure is the utilization of aryl ketals, preferably phenylenedioxy ketals derived from catechol as protective groups for oxo moieties in the polycyclic intermediates used in the aforesaid total synthesis.

3,708,501
2,11,12,20-TETROLA-A-NORPREGNANES AND DERIVATIVES THEREOF

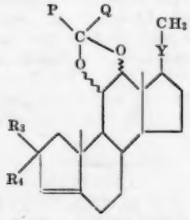
Patrick A. Diassi, Westfield, N.J., assignor to E. R. Squibb & Sons, Inc., New York, N.Y.

Continuation-in-part of Ser. No. 706,793, Feb. 20, 1968, abandoned, which is a division of Ser. No. 520,631, Jan. 14, 1966, Pat. No. 3,492,359. This application June 29, 1970, Ser. No. 50,926

Int. Cl. C07d *13/00*

U.S. Cl. 260—340.5 **5 Claims**

This invention discloses A-norpregesterone acetonide having the formula:



wherein R^3 is hydroxy; R^4 is hydrogen; R^3 and R^4 together is oxo (O=); Y represents C=O or

is hydrogen, lower alkyl, halo lower alkyl, carboxy lower alkyl, monocyclic cycloalkyl, monocyclic aryl, monocyclic aryl lower alkyl, monocyclic heterocyclic or monocyclic heterocyclic lower alkyl; Q is lower alkyl, halo lower alkyl, carboxy lower alkyl, monocyclic cycloalkyl, monocyclic aryl, monocyclic aryl lower alkyl, monocyclic heterocyclic or monocyclic heterocyclic lower alkyl or together with the carbon atoms to which they are joined P and Q are cycloalkyl or monocyclic heterocyclic. The compounds of this invention have been found to be useful as progestational agents.

3,708,502
TEREPHTHALDEHYDE ACETALS

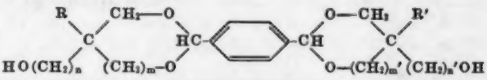
Andrew P. Dunlop, Riverside, and Joseph P. Wuskell, Arlington Heights, Ill., assignors to The Quaker Oats Company, Chicago, Ill.

No Drawing. Filed July 16, 1970, Ser. No. 55,591

Int. Cl. C07d *17/00*

U.S. Cl. 260—340.7 **1 Claim**

This invention provides terephthaldehyde acetals which are useful in the preparation of novel alkyd resins. The present invention is directed to terephthaldehyde acetals of the general formula:



wherein R is selected from the group consisting of hydrogen, methylol, and alkyl radicals; wherein m is an integer from 0 to 1 inclusive; and wherein n is an integer from 1 to 4 inclusive when m is 0 and wherein n is an integer from 0 to 1 inclusive when m is 1; and wherein R' is selected from the group consisting of hydrogen, methylol, and alkyl radicals; wherein m' is an integer from 0 to 1 inclusive; and wherein n' is an integer from 1 to 4 inclusive when m' is 0 and wherein n' is an integer from 0 to 1 inclusive when m' is 1.

3,708,503
A-HOMO-$\Delta^{1'(10),2,4a(5)}$-3-SUBSTITUTED-ESTRATRIEN-4-ONES

Georg Anner, Basel, and Peter Wieland, Oberwil Basel-Land, Switzerland, assignors to Ciba-Geigy Corporation, Summit, N.J.

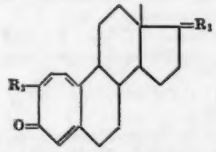
No Drawing. Filed Jan. 26, 1970, Ser. No. 5,898

Claims priority, application Switzerland, Jan. 30, 1969, 1,459/69; Dec. 22, 1969, 19,169/69

Int. Cl. C07d *13/04*

U.S. Cl. 260—340.9 **15 Claims**

Compounds of the formula



where R_1 is a free or ketalized oxo group or a β-positioned free, esterified or etherified hydroxy group together with a lower aliphatic saturated or unsaturated hydrocarbon residue, R_2 stands for an amino group or a free, esterified or etherified hydroxyl group, and the salts of the amino compounds.

Use as agents for fertility control.

3,708,504
MANUFACTURE OF NAPHTHALENE-1,8-DIOIC ANHYDRIDE

Otto Kratzer, Hubert Suter, and Friedrich Wirth, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed May 25, 1971, Ser. No. 146,790

Int. Cl. C07d *7/24*

U.S. Cl. 260—345.2 **5 Claims**

Manufacture of naphthalene-1,8-dioic anhydride by oxidizing acenaphthene with air in the presence of spheri-

cal supported catalysts of which the active composition contains from 1 to 15% by weight of vanadium pentoxide and at least 85% by weight of anatase.

3,708,505
PROCESS FOR PREPARATION OF d,l-ALPHA TOCOPHEROL

Sheldon B. Greenbaum, Livingston, N.J., and Walter Hacke, New York, and Herman Horn, Staten Island, N.Y., assignors to Diamond Shamrock Corporation, Cleveland, Ohio

No Drawing. Filed Feb. 25, 1971, Ser. No. 119,048
Int. Cl. C07d *7/22*
U.S. Cl. 260—345.5 **8 Claims**

D,l-alpha-tocopherol is prepared by reacting trimethylhydroquinone (TMHQ) and isophytol in the presence of a combined acid condensation agent which comprises a Lewis acid and at least one strong acid, which combined acids act in a synergistic manner. A typical example of a useful Lewis acid is zinc chloride. Typical examples of strong acids are p-toluene sulfonic acid and sodium bisulfate.

3,708,506
MANUFACTURE OF EPOXY COMPOUNDS BY REACTION OF OLEFINS WITH HYDROPEROXIDES AND BORATE ESTERS IN SITU

Jean-Claude Brunie and Noel Crenne, Lyon, France, assignors to Rhone-Poulenc S.A., Paris, France

No Drawing. Filed May 27, 1966, Ser. No. 553,305
Claims priority, application France, June 1, 1965, 19,140
Int. Cl. C07d *1/08*
U.S. Cl. 260—348.5 L **14 Claims**

Expoxidized compounds are prepared by heating olefinic compounds with organic hydroperoxides to not above 125° C. in the presence of a borate ester.

3,708,507
PROCESS FOR THE EPOXIDATION OF UNSATURATED COMPOUNDS

Axel Kleemann, Oberursel; Manfred Kruger, Offenbach; Gerd Schreyer, Grossauheim; Otto Weiberg, Neu-Isenburg 2, and Wolfgang Weigert, Offenbach, all of Germany, assignors to Deutsche Gold und Silber-Scheideanstalt vormals Roessler, Frankfurt (Main), Germany

Filed Aug. 4, 1970, Ser. No. 60,872
Claims priority, application Germany, Aug. 21, 1969, P 19 42 557.1
Int. Cl. C07d *1/06, 1/08, 1/16, 1/18*
U.S. Cl. 260—348.5 L **6 Claims**

Olefinically unsaturated organic compounds are epoxidized with solutions of organic percarboxylic acid. An aqueous solution of the percarboxylic acid having at least 2 carbon atoms is dehydrated by extraction and/or distillation with the compound to be epoxidized. The dehydrated product is held at 30° – 100° C. and subjected to a subsequent reaction.

3,708,508
METHOD FOR THE PURIFICATION AND RECOVERY OF TRIBUTYL PHOSPHATE USED IN REPROCESSING NUCLEAR FUEL

Wallace W. Schulz, Richland, Wash., assignor to The United States of America as represented by the United States Atomic Energy Commission

Filed April 9, 1971, Ser. No. 132,830
Int. Cl. B01f *1/00;* **C07f** *9/08*
U.S. Cl. 252—364 **12 Claims**

Tributyl phosphate solutions used in reprocessing nuclear fuel are purified and removed by passing them through a bed of particles of a macroreticular anion or cation exchange resin whereby the chemical and radiolytic degradation products and fission products present in the used solution are adsorbed on the resin. The tributyl phosphate used as extractant may be mixed with a diluent, e.g., C_{10}—C_{14}n-paraffins. Utilization of a macroreticular resin bed may eliminate the need to wash the tributyl phosphate extractant with large volumes of dilute Na_2CO_3 solution and thus avoids generation and disposal of a large volume of radioactive waste.

3,708,509
PROCESS FOR PREPARING BENZOQUINONE

Samuel N. Holter, Penn Hills, Pa., assignor to Koppers Company, Inc.

No Drawing. Filed Nov. 15, 1971, Ser. No. 198,978
Int. Cl. C07c *49/64*
U.S. Cl. 260—396 R **4 Claims**

A process for preparing benzoquinone by oxidizing p-aminophenol with vanadium pentoxide in an acidic aqueous solution, and following recovery of the benzoquinone by steam distillation, regenerating the vanadium pentoxide.

3,708,510
AMIDES OF CHOLANIC ACID, CHOLENIC ACID, AND CHOLADIENIC ACID

John Hannah, Matawan, N.J., assignor to Merck & Co., Inc., Rahway, N.J.

No Drawing. Filed Sept. 3, 1970, Ser. No. 69,453
Int. Cl. C07c *169/60*
U.S. Cl. 260—397.1 **11 Claims**

N-carboxyalkyl amides of 5β-cholanic acid, 5β-cholenic acid and 5β-choladienic acid wherein the unsaturation is within the ring and/or in the 22-position of the aliphatic chain; and various salt, ester and amide derivatives thereof. The products have utility as hypocholesterolemics and hypolipemics.

The products are obtained via the reaction of the appropriate 5β-cholanic acid, 5β-cholenic acid and 5β-choladienic acid with an alkyl haloformate in the presence of a base followed by the reaction of the anhydride thus obtained with a carboxyalkylamine to afford the desired product.

3,708,511
NOVEL Δ-STEROIDS OF THE OESTRANE SERIES

Nicolaas Pieter Van Vliet, Rhenen, and Jacobus Albertus Maria Peters, Oss, both of Netherlands, assignors to Organon Inc., West Orange, N.J.

Filed Jan. 18, 1972, Ser. No. 218,837
Int. Cl. C07c *169/08*
U.S. Cl. 260—397.5 **5 Claims**

The present invention relates to the preparation of novel Δ^6-oestrene compounds, having in 5α-position a hydroxy or hydroperoxy group, which groups may be acylated or alkylated, and which compounds may have an alkyl substituent in 18-position.

These compounds have very strong progestational, ovulation-inhibiting, oestrogenic and pregnancy-maintaining properties.

3,708,512
SEPARATION OF WAX AND OIL BY FRACTIONAL CRYSTALLIZATION

David George Alexander, Westella, Kirkella; Anthony Michael Lloyd, Walkington, near Beverley, East Yorkshire; Geoffrey Charles Greensides, North Ferriby, Yorkshire, and David Harry Thompson, Thorngumbald, near Hedon, Yorkshire, all of England, assignors to Rose, Down & Thompson Limited, Kingston-upon-Hull, Yorkshire, England

Filed Sept. 25, 1969, Ser. No. 861,073
Int. Cl. C11b *1/10*
U.S. Cl. 260—412.8 **12 Claims**

A selective crystallization process in which a mixture of components is dissolved in a solvent and the solution is cooled

uniformly by passing through it a coolant with which the solvent is immiscible or only partially miscible. The coolant temperature is such that the desired higher melting point fraction of the mixture crystallizes out and is removed from the solution.

3,708,513

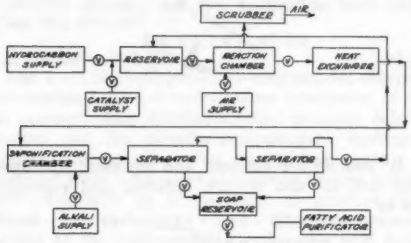
METHOD OF SYNTHESIZING FATTY ACIDS

Joseph R. Wechsler, Chicago, Ill., assignor to Stepan Chemical Company, Northfield, Ill.

Continuation-in-part of abandoned application Ser. No. 655,590, July 24, 1967. This application Nov. 13, 1970, Ser. No. 89,490

Int. Cl. C08h *17/36*; C09f *5/10*

U.S. Cl. 260—413 **25 Claims**



A process of manufacturing synthetic fatty acids from straight-chain hydrocarbons by catalytic oxidation wherein a reaction cycle is employed that reduces over-oxidation and molecular degradation so as to provide higher yields. The catalyst employed requires no mechanical removal from the reaction system. Relatively pure fatty acids are removed from the crude oxidation products by a plurality of alternative purification methods utilizing combined saponification and hydrogenation processes as well as extraction processes to reduce the contaminants in the ultimate product so as to yield substantially pure products.

3,708,514

α-(p-CHLOROPHENOXY)ISOBUTYRIC ACID DERIVATIVES

Masuro Murakami, 19–1–502 Sengoku 2-chome; Ichiro Isaka, 1–4 Shimohoya 3-chome; Norio Kawahara and Teruyo Kashiwagi, both of 16–1 Hasune 3-chome; Tadao Shibanuma, 2–29 Shimo, Kita-ku; and Tetsuya Shiozaki, 198 Kashiwagi 2-chome, all of Tokyo, Japan

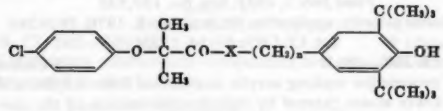
No Drawing. Filed July 30, 1970, Ser. No. 59,742

Claims priority, application Japan, Aug. 14, 1969, 44/63,871

Int. Cl. C07c *153/01*

U.S. Cl. 260—455 R **3 Claims**

Novel (α-chlorophenoxy)isobutyric acid derivatives of the formula



wherein X stands for sulfur, oxygen or the imino group and M is 0 or 1, which are odorless solid having a pharmacological effect of reducing the level of cholesterol and triglyceride in the blood.

3,708,515

PROCESS OF PREPARING γ-CYANO-BUTYRALDIMINES

Jozef A. Thoma, Sittard, Joseph F. M. Klein, Bunde, and Leonardus H. Geurts, Geleen, Netherlands, assignors to Stamicarbon N.V. Heerlen, Netherlands

No Drawing. Filed Feb. 4, 1970, Ser. No. 8,703

Claims priority, application Netherlands, Feb. 8, 1969, 6902028

Int. Cl. C07c *121/46, 121/42*

U.S. Cl. 260—464 **8 Claims**

A process is disclosed for the conversion of an acetaldimine and acrylonitrile in a molar ratio of at least 0.8 to 1, respectively, and at a temperature of 70° C. to 130° C. to the corresponding γ-cyanobutyraldimine, the unconverted reactants being recovered from the reaction mixture and re-cycled. The resulting γ-cyanobutyraldimine product can then be hydrolized to the corresponding γ-cyanobutyraldehyde.

3,708,516

3-BUTENE-3-CYANO-1,2-DICARBOXYLIC ACID ESTERS

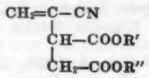
Ken-Ichi Morita and Tsuneo Kobayashi, Kamakura, Japan, assignors to Toray Industries, Inc., Tokyo, Japan

No Drawing. Original application Mar. 31, 1970, Ser. No. 627,289, now Patent No. 3,538,147, dated Nov. 3, 1970. Divided and this application June 24, 1970, Ser. No. 49,529

Int. Cl. C07c *121/48, 121/60, 121/40*

U.S. Cl. 260—464 **7 Claims**

Compounds having the following formula:



wherein R' and R'' are the same or different and represent an alkyl group having up to 18 carbon atoms, an alkenyl group having up to 18 carbon atoms, an aryl group having up to 10 carbon atoms, an aralkyl group having up to 10 carbon atoms or a cycloalkyl group having 10 carbon atoms.

3,708,517

4,4'-DIISOCYANO-THIO-DIPHENYLETHER

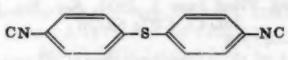
Ivar Karl Ugi, 1846 Preuss Road, Los Angeles, Calif. 90035

No Drawing. Application Mar. 11, 1970, Ser. No. 17,999, which is a continuation of application Ser. No. 588,656, Sept. 26, 1966, which in turn is a continuation of application Ser. No. 264,707, Mar. 12, 1963. Divided and this application Jan. 27, 1971, Ser. No. 110,307

Int. Cl. C07c *119/02*

U.S. Cl. 260—465 H **1 Claim**

4,4'-diisocyano-thio-diphenylether having the formula



This new compound is useful as an intermediate for the manufacture of plant protection agents.

3,708,518
PROCESS FOR PREPARING ESTERS OF THE PARA-DIPHENYL ACETIC ACID

Luigi Cassar; Gian Paolo Chiusoli; Marco Foa, all of Novara; Giuseppe Losco, Milan, and Franco Smai, Limbiate, all of Italy, assignors to Montecatini Edison S.p.A., Milan, Italy

Filed July 21, 1970, Ser. No. 56,981
Claims priority, application Italy, July 23, 1969, 19997 A/69
Int. Cl. C07c *69/76*
U.S. Cl. 260—469 3 Claims

A process is disclosed for preparing esters of p-diphenyl-acetic acid of the formula:

(wherein R is an alkyl or a fluoroalkyl group having from one to five carbon atoms) starting from diphenyl, and characterized in that in a first step the diphenyl is chloromethylated with CH_2O and HCl, in acetic acid as a solvent, and in the presence of sulphuric or phosphoric acid as catalyst, at temperatures between 70° and 120°C and under pressures between 1 and 3 atm., and that in a second step the p-chloromethyl-diphenyl thus obtained is made to react with carbon oxide and an alkanol or a fluoro-alkanol, ROH, wherein R has the above indicated meaning, in the presence of a metal-carbonyl as catalyst and of a neutralizing agent at temperatures between 30° and 90°C and under pressures of CO between 0.5 and 2 atm., in order to obtain the desired ester. In the second step, the reaction is carried out in the presence of a solvent selected from the group consisting of the N-dialkyl amides and the alkano-nitriles, and the catalyst is a salt of cobalt hydrocarbonyl $HCo(CO)_4$ or the $Ni(CO)_4 + I^-$ system (and with 2-fluoro-ethanol and a co-solvent in the case of the latter).

3,708,519
PROCESS FOR THE PREPARATION OF AN ANHYDROUS ALKALI METAL SALT OR A p-HYDROXYBENZOIC ACID ESTER

Saburo Senoo, Tokyo, Toshio Kato, Ohmiya, and Hiroshi Kimura, Tokyo, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Kita-ku, Osaka, Osaka Perfecture, Japan

No Drawing. Filed Feb. 4, 1969, Ser. No. 796,553
Claims priority, application Japan, Apr. 18, 1968, 43/25,506
Int. Cl. C07c *69/78*
U.S. Cl. 260—473 S 5 Claims

A process for the preparation of an anhydrous alkali metal salt of a p-hydroxybenzoic acid ester which comprises contacting a p-hydroxybenzoic acid ester with a corresponding alkali metal hydroxide solution to effect neutralization thereof to obtain a crystalline alakali metal salt hydrate of a p-hydroxybenzoic acid ester by cooling or concentrating the solution and subsequently drying the resulting crystalline hydrate at a temperature below the melting point thereof. Thus it has become possible to prepare an anhydrous alkali metal salt of a p-hydroxybenzoic acid ester at a low cost which allows its practical use in an industrial scale.

3,708,520
VINYL ESTERS OF DIALKYLHYDROXYPHENYL ALKANOATES

Martin Dexter, Briarcliff Manor, John D. Spivack, Spring Valley, and David H. Steinberg, Bronx, N.Y., assignors to Ciba-Geigy Corporation, Greenburgh, N.Y.

No Drawing. Filed June 1, 1971, Ser. No. 149,049
Int. Cl. C07c *69/76*
U.S. Cl. 260—473 S 7 Claims

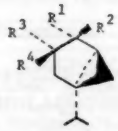
Vinyl esters of dialkylhydroxyphenyl alkanoate monomers are prepared by a direct reaction of acetylene with an appropriate acid or the acidolysis of vinyl acetate or isopropenyl acetate. These monomers can be polymerized with a free radical initiator yielding polymeric materials which will protect organic materials in general and particularly, synthetic polymers such as polyolefins against oxidative and thermal degradation.

3,708,521
CINNAMATE ESTERS OF THUJOLS

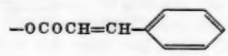
Vladimir Hach, Delta, British Columbia, Canada, and Harold G. Higson, Cincinnati, Ohio, assignors to MacMillan Bloedel Limited, Vancouver, British Columbia, Canada

No Drawing. Filed Dec. 4, 1970, Ser. No. 95,385
Int. Cl. C07c *69/76*
U.S. Cl. 260—476 C 5 Claims

Novel cinnamate esters of thujanols are described having the structural formula:



wherein R^1 and R^2 are different and represent hydrogen or methyl and R^3 and R^4 are different and represent hydrogen or



These esters are powerful odoriferous compounds which are excellent substitutes for natural styrax.

3,708,522
REACTION PRODUCTS OF HIGH MOLECULAR WEIGHT CARBOXYLIC ACID ESTERS AND CERTAIN CARBOXYLIC ACID ACYLATING REACTANTS

William Monroe LeSuer, Cleveland, Ohio, assignor to The Lubrizol Corporation, Wickliffe, Ohio

Continuation-in-part of Ser. No. 717,429, March 29, 1968, abandoned. This application Dec. 29, 1969, Ser. No. 888,823
Int. Cl. C07c *69/32, 69/40;* C10m *3/20*
U.S. Cl. 260—485 G 13 Claims

High molecular weight, oil-soluble, mono- and poly- carboxylic acid esters are post-treated with mono- or polycarboxylic acid acylating reactants to provide compositions useful as dispersants in lubricants and fuels. Esters of polyisobutenyl-substituted succinic anhydride and pentaerythritol post-treated with maleic anhydride exemplify the process and compositions of this invention.

3,708,523
PROCESS OF MANUFACTURING ACRYLIC DERIVATIVES

Jean Berthoux, 69 Decines; Gerard Schneider, 69 Clauire, and Renaud de Surville, 92 Boulogne-Billancourt, all of France, assignors to PROGIL, Paris, France

Filed July 2, 1971, Ser. No. 159,535
Claims priority, application France, July 8, 1970, 7026295
Int. Cl. C07c *69/54, 57/04*
U.S. Cl. 260—486 D 8 Claims

A process for making acrylic derivatives from acrylic acid and lower esters thereof by dehydrochlorination of the corresponding α-chloropropionic acid or ester in the vapor phase with a catalyst in the presence of added gaseous hydrogen chloride.

3,708,524

PROCESS FOR PRODUCING HYDROXYALKYLACRYLATES OR HYDROXYALKYLMETHACRYLATES

Masayuki Murayama, Niigata, and Koichi Abe, Niitsu, Japan, assignors to Japan Gas-Chemical Company, Inc., Tokyo, Japan

No Drawing. Filed June 5, 1970, Ser. No. 43,930
Int. Cl. C07c *69/54*
U.S. Cl. 260—486 B 7 Claims

Process for the preparation of hydroxyalkylacrylates or hydroxyalkylmethacrylates, the improvement which is the use of trivalent iron compounds as catalysts.

3,708,525

CHEMICAL COMPOUNDS AND PROCESSES FOR PREPARING SAME

Marcia E. Christy, Perkasie, Pa., assignor to Merck & Co., Inc., Rahway, N.J.

No Drawing. Original application Mar. 21, 1967, Ser. No. 624,705. Divided and this application Nov. 20, 1969, Ser. No. 877,547
Int. Cl. C07c *69/02*
U.S. Cl. 260—488 CD 10 Claims

The 1 - (10,11-dihydro-5,10-methano-5H-dibenzo[a,d] cyclohepten-5-yl)-3-dimethylamino-1-propanol as well as the corresponding dimethylamino-1-propene dehydration product and the dimethylaminopropane hydrogenation product (compounds active as antidepressants) are all produced from 9-alkanoyl-anthracene by first reacting the anthracene with an acrylic ester to produce the 9,10-ethano - 11 - carbalkoxy - 9,10 - dihydroanthracene, conversion to the corresponding carboxylic acid hydrazide, followed by degradation to the corresponding 11-amino compound and acidic rearrangement to produce 5-alkanoyl - 5,10 - methano - 11 - hydroxy-10,11-dihydrodibenzocycloheptene, followed by conversion of the 5-position side chain to a dialkylamino-1-propanol substituent.

3,708,526

ALKYL AMIDOSULFINIC ACID (BIS-ALKYLAMINE) SALTS AND METHOD FOR THEIR PREPARATION

Ludo K. Frevel, Midland, and Leonard J. Kressley, Saginaw, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Oct. 3, 1968, Ser. No. 764,949
Int. Cl. C07c *145/00*
U.S. Cl. 260—501.12 10 Claims

New aliphatic imidodisulfinic acid (aliphatic amine) salts are prepared by reacting a primary aliphatic amine or an alkanolamine having a primary amino group with SO_2 under anhydrous conditions and in the absence of oxygen. The compounds react with Cu, Pb, Hg and other inorganic cations to form colored solutions or precipitates. They are useful as analytical reagents for metal ions.

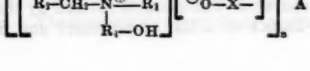
3,708,527

QUATERNARY AMMONIUM ARYL CARBOXYLIC ACID SALTS

Max Duennenberger, Frenkendorf, Max Schellenbaum, Muttenz, and Fulvio Casagrande, Binningen, Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

No Drawing. Filed Feb. 10, 1970, Ser. No. 10,308
Claims priority, application Switzerland, Feb. 26, 1969, 2.897/69
Int. Cl. C07c *87/30*
U.S. Cl. 260—501.15 5 Claims

Quaternary ammonium compounds are provided which correspond to the formula



in which A is an organic residue, X is a —CO—, —SO_2— or —SO_3— group, R_1 is an aliphatic residue, R_2 is a benzene residue, R_3 and R_4 each is a divalent aliphatic residue and n is 1 or 2. These compounds are used for combatting harmful micro-organisms, such as bacteria and fungi. They are especially used for the antimicrobial finishing and/or protection of organic material more particularly of textiles, against micro-organisms.

3,708,528

2,2-DIMETHYL-3-SUBSTITUTED-CYCLOPROPANECARBOXYLIC ACIDS AND A PROCESS FOR THEIR PRODUCTION

Barid B. Mukherjee, Dale G. Brown, and Ira D. Hill, Middlesex County, N.J., assignors to Tenneco Chemicals, Inc.

No Drawing. Filed Feb. 3, 1970, Ser. No. 8,410
Int. Cl. C07c *61/36*
U.S. Cl. 260—514 P 2 Claims

Acetyl-, hydroxy-, hydroxymethyl-, and acetoxymethylcarenes are ozonized to form ketoaldehydes and dialdehydes that are further oxidized to 2,2-dimethyl-3-substituted-cyclopropanecarboxylic acids, such as 2,2-dimethyl-3-(β,β-diacetylethyl)cyclopropanecarboxylic acid and 2,2-dimethyl - 3 - (β-acetyl-γ-acetylpropanoyl)cyclopropanecarboxylic acid. These acids may be further reacted to form other acids, such as 2,2-dimethyl-3-(β-hydroxymethyl-β-carboxyethyl)cyclopropanecarboxylic acid, as well as esters and salts of the acids.

3,708,529

PROCESS FOR PREPARING PHENYLACETIC ACID

Luigi Cassar, Marco Foa, and Gian Paolo Chiusoli, Novara, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy

No Drawing. Filed July 22, 1970, Ser. No. 57,356
Claims priority, application Italy, July 23, 1969, 19,996/69
Int. Cl. C07c *63/54*
U.S. Cl. 260—515 R 3 Claims

Process for the synthesis of phenylacetic acid by carbonylation of benzyl chloride. The process comprises reacting benzyl chloride and carbon monoxide under atmospheric pressure, at temperatures from 20° to 80° C. in a water-methanol medium containing up to 35% water, using a catalyst mixture consisting of a cobalt salt, an iron-manganese alloy and a sulphurated promoting agent. Calcium oxide is used as a neutralizing agent. The calcium salt obtained is treated with a strong mineral acid to free the phenylacetic acid.

3,708,530

BENZYLHALIDE CARBONYLATION PROCESS

Bernard S. Friedman, Chicago, Ill., assignor to Atlantic Richfield Company, New York, N.Y.

No Drawing. Filed Jan. 5, 1970, Ser. No. 820
Int. Cl. C07c *63/52, 63/56*
U.S. Cl. 260—515 P 19 Claims

A process for the manufacture of aromatic carboxylic acids comprising reacting a benzylic halide which contains substituents in such positions that self-alkylation (polymerization) of the halide is blocked, with carbon monoxide at a temperature of about 20 to 150° C.

3,708,531

PROMOTION OF THE OXIDATION OF MONONUCLEAR AROMATIC COMPOUNDS

Louis J. Corce, Seabrook, Tex., and Bruno J. Barone, Houston, Tex., assignors to Petro-Tex Chemical, Houston, Tex.

Division of Ser. No. 755,775, Aug. 28, 1968. This application June 2, 1971, Ser. No. 149,382
Int. Cl. C07c *51/26, 63/02*
U.S. Cl. 260—523 A 7 Claims

A process for the oxidation of mononuclear aromatic compounds having at least one oxidizable group selected from

methyl, hydroxymethyl, and aldehyde, at moderate temperatures, and in the presence of oxygen, cobaltous or cobaltic ions, and an effective amount of a specified substituted acid function.

3,708,532

PROCESS FOR THE CONTINUOUS PURIFICATION OF CRUDE TEREPHTHALIC ACID

Yataro Ichikawa and Michiyuki Tokashiki, Iwakuni-shi, Japan, assignors to Teijin Limited, Osaka, Japan

Filed Nov. 4, 1968, Ser. No. 773,193
Int. Cl. C07c *51/42*
U.S. Cl. 260—525 9 Claims

A process for the continuous purification of crude terephthalic acid by recrystallization comprising feeding a heated solution of crude terephthalic acid in a solvent comprising acetic acid, propionic acid or butyric acid, or an aqueous solution thereof into a first crystallization vessel maintained at a pressure below the vapor pressure of the heated solution, such pressure and temperature causing adiabatic evaporation of 10 to 60% by weight of the solvent in the solution whereby solid terephthalic acid is precipitated, and thereafter passing the slurry formed in the first crystallization vessel to a second and subsequent crystallization vessels maintained at a temperature and pressure lower than the preceding crystallization vessel so as to cause further precipitation of the terephthalic acid and adiabatic evaporation of 10 to 60% by weight of the slurry in the crystallization vessel, the terephthalic acid concentration in each of the first and subsequent crystallization vessels to be controlled to be no more than 60 parts by weight of terephthalic acid per 100 parts by weight of solvent. A terephthalic acid slurry is withdrawn from the last crystallization vessel and the terephthalic acid in a purified form is recovered therefrom.

3,708,533

METHOD FOR THE PREPARATION OF AMINOCARBOXYLIC ACID SALTS

Ibrahim S. Bechara, New Castle, George B. De La Mater, Media, and Barton Milligan, Ardmore, Pa., assignors to Air Products and Chemicals Inc., Philadelphia, Pa.

No Drawing. Filed Jan. 25, 1971, Ser. No. 109,642
Int. Cl. C07c *51/30, 10/04*
U.S. Cl. 260—531 C 6 Claims

Production of the salts of aminocarboxylic acids from amino alkanols and alkali metal hydroxides in the presence of catalyst is substantially improved in obtaining high yields at shortened reaction times when the reaction is effected in the presence of higher water concentrations and substantially lower hydrogen partial pressure conditions. Particularly advantageous results are obtained with the trisodium salt of nitrilo triacetic acid prepared from nitrilotriethanol and aqueous caustic.

3,708,534

PROCESS FOR THE PREPARATION OF ω-HYDROXY SATURATED ALIPHATIC MONOCARBOXYLIC ACIDS OF 4 TO 12 CARBON ATOMS

Sachio Ishimoto, Tokyo, and Haruo Togawa, Yuitsu Honda, and Noritsugu Saiki, Iwakuni, Japan, assignors to Teijin Limited, Umeda, Kita-ku, Osaka, Japan

No Drawing. Filed Mar. 19, 1970, Ser. No. 21,173
Int. Cl. C07c *59/04*
U.S. Cl. 260—535 R 8 Claims

Omega-hydroxy saturated aliphatic monocarboxylic acids of 4–12 carbons are prepared with high conversion and high selectivity by single stage reaction by contacting a saturated aliphatic dicarboxylic acid of 4–12 carbons, together with 0.3–20 times its weight of a saturated aliphatic glycol of the same carbon numbers as of the dicarboxylic acid, with hydrogen, in the presence of a cobalt catalyst which has been sintered at the temperatures ranging from 1000–1750° C. and thereafter reduced, at a temperature within the range of 180–300° C. under a pressure as will provide a partial pressure of hydrogen within the range of 10–80 kg./cm.².

3,708,535

[2-(DIHALOPHOSPHINYL)-1-METHYLVINYL] ONIUM HALIDES

Raymond A. Firestone, Fanwood, N.J., assignor to Merck & Co., Inc., Rahway, N.J.

No Drawing. Filed Feb. 3, 1969, Ser. No. 796,173
Int. Cl. C07f *9/42, 9/54*
U.S. Cl. 260—543 P 4 Claims

A method for the preparation of (cis-1,2-epoxypropyl) phosphonic acid and its ester, amide and salt derivatives via the reaction of a {2-[disubstituted oxy (or tetrasubstituted amino or dihalo)phosphinyl]-1-methylvinyl} onium halide with a base. The term "onium" includes radicals selected from sulfonium, sulfoxonium, ammonium, phsphonic acid and its salts are useful as antimicrobial phosphonium and the like. The (cis-1,2-epoxypropyl) phosphoric acid and its salts are useful as antimicrobial agents and inhibit the growth of gram-negative and gram-positive pathogenic bacteria.

3,708,536

RECYCLING MELAMINE SYNTHESIS OFFGAS TO UREA SYNTHESIS

Engelbert Hillenbrand, Ludwigshafen, Germany, assignor to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

Filed July 23, 1969, Ser. No. 844,089
Claims priority, application Germany, July 25, 1968, P 17 70 969.2
Int. Cl. C07c *127/00*
U.S. Cl. 260—555 A 4 Claims

Offgas consisting essentially of ammonia and carbon dioxide is formed in the synthesis of melamine from urea. This is absorbed in two stages in water or an aqueous solution of ammonium carbamate or urea for return to urea synthesis. In the first stage the gas is treated with an amount of absorbent solution which is not sufficient to absorb the whole of the gas. The remaining offgas and the solution formed are then compressed separately from one another to the pressure which is sufficient for the absorption of the remaining offgas into the solution and the offgas is then absorbed. The solution thus formed is returned to the high pressure section of the synthesis plant.

3,708,537

CERTAIN PERFLUOROALKYL SULFONAMIDES

James D. Groves, Hudson Township, St. Croix, Wis., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

No Drawing. Continuation of application Ser. No. 555,979, June 8, 1966. This application July 2, 1969, Ser. No. 845,617
Int. Cl. C07c *143/72, 143/84*
U.S. Cl. 260—556 F 3 Claims

A fluorocarbon amide having a hydrogen atom bonded to the amide nitrogen (a primary or secondary amide) is added across the vinyl group of a vinyl sulfone so that the hydrogen becomes bonded to one vinyl carbon atom, the remainder of the fluorocarbon amide becomes bonded to the other vinyl carbon atom and the resulting adduct is recovered. The adducts formed by this reaction vary from liquids to solids to polymers and find varied

uses, e.g. as dielectric fluids, heat transfer media, lubricants, release coatings, barrier laminants and oil- and water-repellent coatings.

3,708,538

N-FLUOROALKYL-SULFONAMIDES AND PROCESS FOR PREPARING THEM

Helmut Hahn, Burghausen, Salzach, Ottto Scherer, Bad Soden, Taunus, and Siegfried Rebsdat, Altotting, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed July 29, 1970, Ser. No. 59,363

Int. Cl. C07c *143/74, 143/78*

U.S. Cl. 260—556 A **4 Claims**

New stable sulfonamides containing a CF_2 group adjacent to nitrogen are obtained by reacting N-mono-substituted sulfonamides with fluoro-olefins or the alkali metal salts of said sulfonamides with fluoro-haloalkanes. The products are useful as reactive intermediates for a variety of organic syntheses and—owing to their polarity and high boiling points—as valuable solvents for sparingly soluble organic or inorganic compounds.

3,708,539

CONDENSATION OF AMMONIA OR A PRIMARY OR SECONDARY AMINE WITH AN ALCOHOL

Donald M. Fenton, Anaheim, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.

No Drawing. Filed Feb. 6, 1970, Ser. No. 9,404

Int. Cl. C07c *85/02*

U.S. Cl. 260—585 B **9 Claims**

Ammonia or a primary or secondary amine is condensed with an alcohol in a liquid reaction medium containing a ruthenium, osmium, rhenium or technetium catalyst which is preferably in complex association with a biphyllic ligand. A typical process comprises contacting dibutylamine with butanol in the presence of ruthenium trichloride and triphenylphosphine to produce tributylamine.

3,708,540

PENTANEDIONE DERIVATIVES

Hajime Yokotani, Osaka; Masuo Miyamoto, Sakyo-ku, Kyoto, and Tadakazu Murata, Suita, Osaka, all of Japan, assignors to Takeda Chemical Industries, Ltd., Higashi-ku, Japan

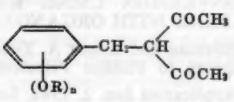
Filed July 21, 1970, Ser. No. 56,971

Claims priority, application Japan, July 21, 1969, 44/57562

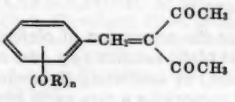
Int. Cl. C07c *49/82*

U.S. Cl. 260—590 **1 Claim**

Compounds of the formula



wherein R is a hydrogen atom or an alkyl having one to five carbon atoms and *n* is an integer of 1 to 3, are produced by subjecting a compound of the formula



wherein R an *n* have the same meaning as above, to hydrogenation. The compounds are cholagogue agents.

3,708,541

HOMOGONANE DERIVATIVES

Eugene E. Galantay, Morristown, N.J., assignor to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Division of application Ser. No. 630,496, Apr. 13, 1967, now Patent No. 3,505,393, which is a continuation-in-part of application Ser. No. 603,160, Dec. 20, 1966, now Patent No. 3,513,204, which in turn is a continuation-in-part of application Ser. No. 566,730, July 21, 1966, now abandoned. This application Dec. 29, 1969, Ser. No. 888,979

Int. Cl. C07c *171/02*

U.S. Cl. 260—590 **9 Claims**

13β-(lower alkyl)-B-(6)-homogonenes have been found to possess properties useful for fertility control and in the therapy of menopausal problems. They are also useful for growth stimulation, postoperative recovery and healing of wounds and burns.

3,708,542

MANUFACTURE OF DIALKYL SULPHOXIDES

Charles Douchet, 1 Avenue de l'Hermitage, 64 Morenx, France; Pierre Grancher, 11 Rue Ch. Peguy, 64 Pau, France; and Robert Vecchiutti, 11 Avenue Bagnell, 64 Jurancon, France

Filed Dec. 1, 1970, Ser. No. 94,014

Claims priority, application France, Dec. 3, 1969, 41,635

Int. Cl. C07c *147/14*

U.S. Cl. 260—607 A **7 Claims**

Process for the manufacture of dialkyl sulphoxides by the reaction of the corresponding dialkyl sulphide with nitrogen peroxide, in which each mole of the dialkyl sulfide reactant is diluted with from 0.15 to 3 moles of the dialkyl sulphoxide and each mole of the nitrogen peroxide reactant is diluted with from 4 to 10 moles of oxygen. In this manner increased reactant stability and improved control of the reaction is made possible.

3,708,543

ALLYL ACETAL DERIVATIVE OF 1-HALO-3-MERCAPTO-2-PROPANOL

Richard A. Hickner and Corwin J. Bredeweg, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Original application Oct. 3, 1968, Ser. No. 764,956. Divided and this application Aug. 9, 1971, Ser. No. 170,300

Int. Cl. C07c *149/18*

U.S. Cl. 260—609 R **9 Claims**

Compounds of the structure $R(SCH_2CHOHCH_2X)_n$ when n=1 to 4 and R is a hydrocarbon, ether, ester, acetal, hydroxy aliphatic, hydroxy aromatic, imide or amide group or halogenated derivatives thereof are prepared by reacting 1-halo-3-mercapto-2-propanol with an aliphatically unsaturated compound using free radical initiators as catalysts. The compounds in which R is an unsaturated aliphatic hydrocarbon group of 2 to 24 carbon atoms, or an unsaturated cycloaliphatic group, and those in which the aliphatic or cycloaliphatic group is connected to two or more —S—$CH_2CHOHCHCl$ groups, and compounds where R is an alkylene substituted aromatic group and hydroxy, thioalkyl, alkoxy, aryloxy, ester, carbamidoalkyl and sulfamidoalkyl, halogenated derivatives of said groups are new compounds. The thioether halohydrins can be converted to epoxides. The process utilizing a radioactive energy source as a catalyst is new.

3,708,544

CHOLERETIC AND ANTI-CONVULSANT MEDICAMENT AND A PROCESS FOR ITS PREPARATION

Joseph Nordmann, Paris; Georges Dominique Mattioda, Platanes, and Gerard Paul Marie Henri Loiseau, Sceaux, all of France, assignors to Ugine Kuhlmann, Paris, France

Filed Jan. 6, 1971, Ser. No. 104,509
Int. Cl. C07c *31/14*
U.S. Cl. 260—618 R 1 Claim

3'-trifluoromethyl-1-phenyl-2-methyl-1-propanol, compositions containing it, its use in the treatment of hepatic disorders and processes for its preparation.

3,708,545

PROCESS FOR THE PREPARATION OF p-NITROPHENOL AND METAL SALTS THEREOF USING AMMONIA TO CONTROL THE ISOMER DISTRIBUTION

Edward Noonan Squire, Glen Mills, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Feb. 11, 1969, Ser. No. 798,435
Int. Cl. C07c *79/24*
U.S. Cl. 260—622 R 4 Claims

A process for the preparation of p-nitrophenol and metal salts thereof which comprises agitating nitrobenzene, metal hydroxide, ammonia and optionally oxygen for preparation of the metal salt and acidification of the metal salt for the preparation of the p-nitrophenol.

3,708,546

PREPARATION OF DINITROTOLUENE

Clifford L. Coon, Fremont; Gerald J. McDonald, Menlo Park, and Marion E. Hill, Palo Alto, all of Calif., assignors to Stanford Research Institute, Menlo Park, Calif.

Filed Jan. 17, 1972, Ser. No. 218,505
Int. Cl. C07c *79/10*
U.S. Cl. 260—645 3 Claims

Mixtures of dinitrotoluene isomers containing extremely small amounts of meta isomers are rapidly prepared in quantitative yield by temperatures in the presence of a small amount of water. Total meta isomer content can readily be kept at a level below about 2 percent by weight.

3,708,547

SYNTHESIS OF [10]-ANNULENES

Peter H. Nelson and Karl G. Untch, Los Altos, Calif., assignors to Syntex Corporation, Panama, Panama

No Drawing. Filed Sept. 2, 1969, Ser. No. 854,741
Int. Cl. C07c *17/32, 23/18*
U.S. Cl. 260—648 R 12 Claims

New process for preparing [10]-annulene compounds which are useful as estrogenic, anti-inflammatory, and anti-fertility agents. The process utilizes the steps of adding a methano, dichloromethano, or difluoromethano group across the C-9,10 double bond of a 1,4,5,8-tetrahydronaphthalene to the corresponding 9,10-bridged-1,4-5,8,9,10 - hexahydronaphthalene and treating the latter with a benzoquinone to the corresponding 1,6 - bridged-[10]-annulene product. The preparations of 1,6-methano-[10]-annulene, 1,6-dichloromethano-[10]-annulene, and 1,6-difluoromethane-[10]-annulene are illustrated as representative of the process.

3,708,548

METHOD FOR PRODUCING DICHLOROBUTENE

Takeshi Yamahara, Higashinada-ku, Kobe-shi; Hiroshi Kishimoto, Takatsuki-shi, Osaka-fu; Shinji Nakamura, Ibaraki-shi, Osaka-fu; Takashi Deguchi, Takatsuki-shi, Osaka-fu, and Shichiro Takamatsu, Kamikuo-ku, Kyoto-shi, all of Japan, assignors to Sumitomo Chemical Co., Ltd., Osaka, Japan

Filed Nov. 26, 1969, Ser. No. 880,355
Claims priority, application Japan, Dec. 10, 1968, 43/90823
Int. Cl. C07c *21/00*
U.S. Cl. 260—654 H 4 Claims

The method comprises the steps of reacting a gaseous mixture comprising butadiene and chlorine in at least a 2:1 molar ratio at a temperature from 150° to 280°C. in a first reaction zone wherein the gaseous reaction mixture is wholly agitated, and then in a second reaction zone wherein the gaseous reaction mixture is not significantly agitated.

3,708,549

STANNANE AS A REDUCING AGENT

Gerald H. Reifenberg, Hightstown, and William J. Considine, Somerset, both of N.J., assignors to M&T Chemicals Inc., New York, N.Y.

Division of Ser. No. 742,164, July 3, 1968. This application June 24, 1970, Ser. No. 59,839
Int. Cl. C07c *15/06*
U.S. Cl. 260—668 R 2 Claims

The method of this invention for reducing organic substrates comprises reacting as reactants stannane, SnH_4, and an organic substrate, maintaining said reactants together in a reaction mixture, and separating said reduced substrate from said reaction mixture.

3,708,550

DEHYDROGENATION PROCESS

Harold Beuther, and Harold E. Swift, both of Gibsonia, Pa., assignors to Ameripol, Inc., Cleveland, Ohio

Continuation-in-part of Ser. No. 784,194, Dec. 16, 1968, abandoned. This application June 16, 1971, Ser. No. 153,822
Int. Cl. C07c *5/18*
U.S. Cl. 260—680 R 8 Claims

Process for reducing the formation and effects of carbon mounds in dehydrogenation reactions employing calcium nickel phosphate-containing catalysts by adding vaporized sulfur-containing materials to the catalyst bed. Such additives preferably are added during the hydrocarbon feed phase of the reaction cycle.

3,708,551

OLEFIN CONVERSION USING RARE EARTH METAL HALIDES WITH ORGANOALUMINUMS

Edmund T. Kittleman and Ernest A. Zuech, Bartlesville, Okla., assignors to Phillips Petroleum Company

No Drawing. Application Jan. 2, 1968, Ser. No. 694,874, now Patent No. 3,554,924, dated Jan. 26, 1971, which is a continuation-in-part of application Ser. No. 635,676, May 3, 1967. Divided and this application Sept. 1, 1970, Ser. No. 68,756
Int. Cl. C07c *3/62, 11/02, 13/02*
U.S. Cl. 260—683 D 10 Claims

A process for the conversion of olefinic hydrocarbons according to the olefin reaction (e.g., the olefin disproportionation reaction) by contacting the olefinic hydrocarbon with a catalyst comprising a rare earth metal halide (e.g., $SmCl_3$) combined with an organoaluminum compound (e.g., ethylaluminum dichloride).

3,708,552

PROCESS AND APPARATUS FOR THERMAL CRACKING OF HYDROCARBONS

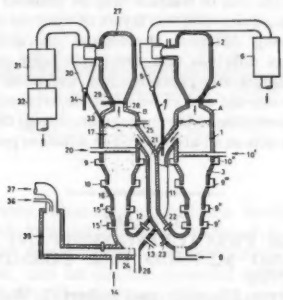
Daizo Kunii, Bunkyo-ku, Tokyo, and Taiseki Kunugi, Minato-ku, Tokyo, both of Japan, assignors to Toyo Soda Manufacturing Co., Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 669,736, Sept. 22, 1967, abandoned. This application Nov. 3, 1970, Ser. No. 86,574

Claims priority, application Japan, March 3, 1967, 42/13501; Nov. 10, 1966, 41/73957; Nov. 10, 1966, 41/73958

Int. Cl. C07c *3/30;* B01j *9/18*

U.S. Cl. 260—683 R 5 Claims



Apparatus is provided for thermal cracking of hydrocarbons, which comprises a reaction column A having a reactor attached thereto, and a regenerator B having a combustion and heating chamber attached thereto (see FIG. 1), wherein the reaction column has a large diameter in the upward portion thereof and smaller diameter in the downward portion thereof, the reactor, using a dilute fluidized layer, being connected with the top of the reaction column, and on the other hand the regenerator has a large diameter in the upward portion thereof and a smaller diameter in the downward portion thereof, the combustion and heating chamber, using a dilute fluidized layer, being connected with the top of the regenerator. Means are provided for connecting the upper part of the reaction column to the lowermost portion of the regenerator, and similar means are provided for connecting the upper part of the regenerator to the lowermost portion of the reaction column. A refractory material maintained under concentrated, floatable, fluidized conditions is caused to circulate between the regenerator and reaction column as heat carrier, and to come in contact with hydrocarbons introduced into the reaction column, wherein thermal cracking results in the production of lower hydrocarbons. Means are provided for the thermal isolation of the reactor and reaction column, and similarly for the combustion and heating chamber and the regenerator. Also provided are means for the introduction of raw material hydrocarbons, steam, air and heat carrier into the apparatus.

The apparatus is utilized in the thermal cracking of heavy hydrocarbons, resulting in the production of hydrocarbons of C_1, C_2, C_3 and C_4 types, especially ethylene.

3,708,553

ALKYLATION PROCESS UTILIZING A LEWIS ACID HALIDE WITH FLUOROSULFURIC OR TRIFLUOROMETHANESULFONIC ACID

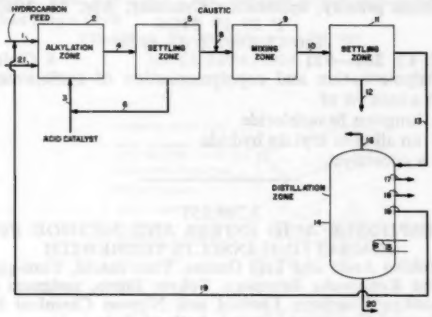
George A. Olah, Cleveland, Ohio, assignor to Esso Research and Engineering Company

Filed June 25, 1971, Ser. No. 156,884

Int. Cl. C07c *3/54*

U.S. Cl. 260—683.47 14 Claims

High octane alkylates are prepared by contacting paraffinic and/or alkyl substituted aromatic hydrocarbons with olefins at alkylation conditions in the presence of a catalyst comprising (a) a Lewis acid of the formula MX_n where M is selected from the Group IV–B, V or VI–B



elements of the Periodic Table, X is a halogen, and *n* varies from 3–6, and (b) a strong Bronsted acid selected from the group comprising fluorosulfuric acid and trifluoromethanesulfonic acid and mixtures thereof.

3,708,554

RUBBER COMPOSITION

Hiroki Oguri, Toyonaka, and Hideo Nagasaki, Minoo, both of Japan, assignors to Taoka Dyestuffs Manufacturing Co., Ltd., Osaka, Japan

Filed Feb. 18, 1970, Ser. No. 12,455

Claims priority, application Japan, March 8, 1969, 44/17768

Int. Cl. C08g *37/16;* C08d *9/08, 9/10*

U.S. Cl. 260—848 8 Claims

The tackiness of a terpolymer rubber of ethylene, propylene and a nonconjugated diene is remarkably improved by incorporating therein (1) an alkylphenol-formaldehyde resin, alkylphenol-acetaldehyde resin, or alkylphenol-acetylene resin and (2) a thermoplastic resin produced by the polymerization of olefinic unsaturated hydrocarbons derived from the cracking of petroleum hydrocarbons, and containing substantially no aromatic hydrocarbons. This effect of the specific combination of two kinds of resin is synergetic. In addition to the improved tackiness, said rubber composition retains an excellent age resistance and a high capacity for loading fillers, both characteristics being inherent in said terpolymer rubber.

3,708,555

GRAFTING OF A MIXTURE OF STYRENE AND MALEIC ANHYDRIDE ONTO BACKBONE POLYMERS CONTAINING ACTIVE OR LABILE HYDROGEN ATOMS

Norman G. Gaylord, New Providence, N.J., assignor to Gaylord Associates, Newark, N.J.

Filed Feb. 24, 1970, Ser. No. 13,768

Int. Cl. C08f *1/02, 19/02*

U.S. Cl. 260—878 R 15 Claims

A process for preparation of carboxyl containing polymer products which comprises reacting polymers having active or labile hydrogen atoms with a mixture of styrene and maleic anhydride and carboxyl containing polymer products prepared thereby.

3,708,556

PROCESS FOR THE PREPARATION OF POLYPENTENAMERS

Karl Nutzel, Opladen, Karl Dinges, Odenthal, and Friedrich Haas, Cologne, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Apr. 6, 1970, Ser. No. 26,155
Claims priority, application Germany, Apr. 15, 1969, P 19 19 046.6
Int. Cl. C08f 3/02, 1/28
U.S. Cl. 260—931 6 Claims

Polymerisation and copolymerisation of cyclopentene with a catalyst of

(a) tungsten hexachloride
(b) an alkyl or aryl tin hydride
(c) a cocatalyst.

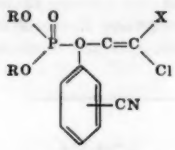
3,708,557

PHOSPHORUS ACID ESTERS AND METHOD FOR COMBATTING INSECTS THEREWITH

Kazuhiko Ando and Teiji Omino, Yasu-machi, Yasu-gun, and Kennosuke Imamura, Tokyo, Japan, assignors to Sankyo Company Limited and Nippon Chemical Industrial Company Limited, both of Tokyo, Japan

No Drawing. Filed Mar. 26, 1969, Ser. No. 810,790
Int. Cl. A01n 9/36; C07f 9/08
U.S. Cl. 260—940 1 Claim

Dialkyl phosphates having the formula



wherein R is a lower alkyl group, preferably of 1 or 2 carbon atoms and X is hydrogen atom or chlorine atom. These phosphates are useful as an insecticide against various harmful insects such as mosquitos, flies, aphids, rice borers, cutworms, spider mites and the like and applied in the form of agricultural insecticidal preparation such as dusts, granules, liquids, wettable powders, emulsions and the like.

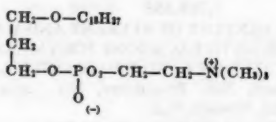
3,708,558

MONOCHLORINE ESTER OF 3-OCTADECYLOXY-PROPANOL-(1)-PHOSPHORIC ACID

Gunter Kny, Nassau (Lahn), and Otto Westphal, Freiburg im Breisgau, Germany, assignors to Boehringer Ingelheim G.m.b.H., Ingelheim am Rhein, Germany

No Drawing. Filed Feb. 23, 1971, Ser. No. 118,083
Claims priority, application Germany, Feb. 27, 1970, P 20 09 341.8
Int. Cl. C07f 9/08; A01n 9/36
U.S. Cl. 260—945 1 Claim

The monocholine ester of 3-octadecyloxy-propanol-(1)-phosphoric acid of the formula



which is useful as an immunologic adjuvant.

ERRATA

For Classes 260—174 and 260—240 R see:
Patents Nos. 3,708,596 and 3,708,597

3,708,559

METHOD OF MAKING NUCLEAR FUEL-CONTAINING BODIES

Eric Handley Voice; Leslie Wilfred Graham, and Derek Williams James Sturge, all of Winfrith, Dorset, England, assignors to United Kindom Atomic Energy Authority, London, England

Filed March 27, 1970, Ser. No. 23,480
Int. Cl. G21c 21/00
U.S. Cl. 264—0.5 14 Claims

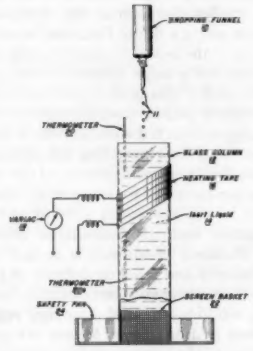
In the forming of bodies, containing fission product retaining nuclear fuel particles, dispersed in a filler material, it is desirable to produce a compact and coherent body without any fractured fuel particles. Fractured particles occur during pressing and the risk of fracture may be reduced by overcoating the fuel particles with two layers of material which exhibit during pressing different rheological characteristics. The characteristics differ in that the inner layer is less readily deformable under the pressure than the outer layer which tends to flow into the spaces between the overcoated particles. On such deformation of the outer overcoating, the inner overcoating layer acts as a buffer between adjacent particles.

3,708,560

HYDRAULIC FRACTURING PROPPANT COMPOSITION AND METHOD FOR FORMING SUCH PROPPANTS

James F. Mayer, Hinsdale, and Robert G. Weisz, Oswego, Ill., assignors to Standard Oil Company, Chicago, Ill.

Continuation of abandoned application Ser. No. 857,880, Sept. 15, 1969. This application July 12, 1971, Ser. No. 161,981
Int. Cl. C08f 21/02, 47/02; B29c 23/00
U.S. Cl. 264—13 10 Claims

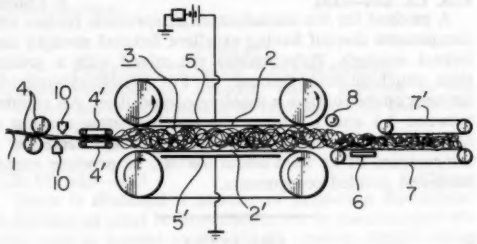


A two-component catalyst system for curing unsaturated polyester resin prills useful as proppants in hydraulic fracturing, the prills being the reaction product of (1) the condensation reaction product of (a) an unsaturated dicarboxylic acid containing from 4 to 8 carbon atoms of the group consisting of alkenedioic acids and anhydrides thereof, (b) a benzene dicarboxylic acid of the group consisting of isophthalic acid, terephthalic acid, alkyl substituted isophthalic acid, alkyl substituted terephthalic acid and mixtures thereof, where each of said alkyl substituted acids contains from 1 to 3 alkyl groups and each alkyl group contains from 1 to 4 carbon atoms and (c) an oxyalkanediol containing from 4 to 12 carbon atoms and (2) a monomer selected from the group consisting of ethylenic and allylic monomers; and a process for forming such prills. In the preferred embodiment, the reactants forming the condensation reaction product (1) also include a minor proportion of an alkanediol containing from 2 to 12 carbon atoms.

3,708,561
PROCESS FOR PRODUCING NON-WOVEN FILAMENTARY STRUCTURE

Kohei Horimoto, Masaharu Kawamura, Susumu Norota, and Mitsuhiko Okui, Ibaraki, Japan, assignors to Teijin Limited, Osaka, Japan

Filed Nov. 3, 1970, Ser. No. 86,527
Claims priority, application Japan, Nov. 5, 1969, 44/88,625
Int. Cl. B29d *7/14*
U.S. Cl. 264—22 7 Claims

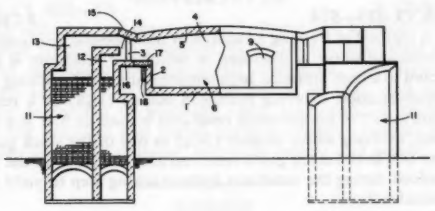


A non-woven filamentary structure having superior bulkiness and bulk-durability is produced by feeding a continuous or non-continuous multifilament, such as a polyester tow, into an electric potential field formed between a pair of endless belts moving at an equal speed in the same direction, at a speed not lower than the speed at which the endless belts are moving thereby expanding the multifilament in a configuration of a non-woven filamentary structure to fill the electric potential field like cotton candy, and then withdrawing the structure from the electric potential field. Preferably, the starting multifilament is treated with an antistatic agent such as anionic and nonionic surfactants prior to being fed into the electrical potential field.

3,708,562
COATING FUSED CAST BLOCKS WITH REFRACTORY PAPER TO PREVENT SPALLING IN HOT REPAIRS

Alton C. Sleggs, Lewiston, and William A. Miller, Jamestown, N.Y., assignors to The Carborundum Company, Niagara Falls, N.Y.

Continuation-in-part of application Ser. No. 866,556, Oct. 16, 1969. This application Oct. 1, 1971, Ser. No. 185,622
Int. Cl. F27d *1/06, 1/16*
U.S. Cl. 264—30 3 Claims

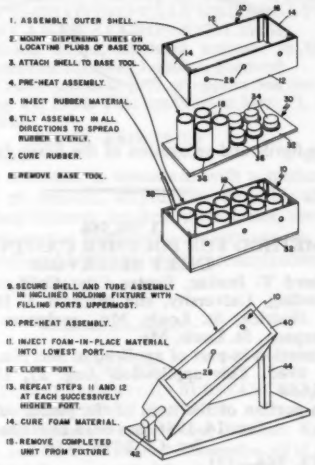


A method of repairing a furnace, for example, a glass tank, while it is at operating temperature, with a fused cast refractory block comprising coating or otherwise applying a refractory insulating material on at least the faces of the block which will be exposed to the furnace interior and which will be adjacent to the existing hot refractory lining, and positioning the thusly insulated block at the repair site. The insulating material must be compatible with the process being performed in the furnace and must remain substantially intact and in place on the block until the temperature of the fused cast block exceeds the critical spalling or cracking temperature of the block.

3,708,563
MAGAZINE FOR AERIAL DISPENSER AND METHOD OF MAKING SAME

Peter A. Sells, San Diego, Calif., assignor to Sells Incorporated, San Diego, Calif.

Filed Sept. 21, 1970, Ser. No. 73,797
Int. Cl. B29d *27/04*
U.S. Cl. 264—45 5 Claims


1. ASSEMBLE OUTER SHELL.
2. MOUNT DISPENSING TUBES ON LOCATING PLUGS OF BASE TOOL.
3. ATTACH SHELL TO BASE TOOL.
4. PRE-HEAT ASSEMBLY.
5. INJECT RUBBER MATERIAL.
6. TILT ASSEMBLY IN ALL DIRECTIONS TO SPREAD RUBBER EVENLY.
7. CURE RUBBER.
8. REMOVE BASE TOOL.
9. SECURE SHELL AND TUBE ASSEMBLY IN INCLINED HOLDING FIXTURE WITH FILLING PORTS UPPERMOST.
10. PRE-HEAT ASSEMBLY.
11. INJECT FOAM-IN-PLACE MATERIAL INTO LOWEST PORT.
12. CLOSE PORT.
13. REPEAT STEPS 11 AND 12 AT EACH SUCCESSIVELY HIGHER PORT.
14. CURE FOAM MATERIAL.
15. REMOVE COMPLETED UNIT FROM FIXTURE.

A magazine for holding a number of cartridges containing flares, metallic chaff and the like for aerial dispensation. The magazine has a simple open frame or shell in which any required number of cartridge holding tubes are positioned in a specific pattern on a prepared tool, the tubes being initially held by a layer of rubbery material which forms one finished face of the magazine. The interior of the shell between the tubes is then filled with foam material, applied progressively with the assembly in a special holding fixture to ensure complete filling.

3,708,564
WITHDRAWN

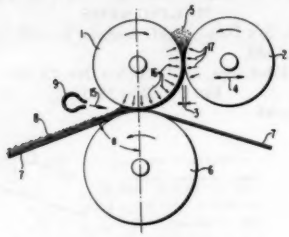
3,708,565
PROCESS FOR THE PRODUCTION OF FIBERS FROM THERMOPLASTIC SYNTHETIC MATERIAL

Karlheinz Seiffert, Apartado 64, Carretera de Pego, Benidorm, Spain

Continuation-in-part of application Ser. No. 684,778, Nov. 21, 1967. This application Aug. 7, 1970, Ser. No. 62,076
Claims priority, application Germany, Nov. 21, 1966, S 107,049
Int. Cl. B29c *17/02, 24/00;* B29d *7/14*
U.S. Cl. 264—88 9 Claims

A process for the production of fur-like fibers on a flexible surface in which a continuous film or layer of thermoplastic synthetic material, of the type which becomes viscid when sufficiently heated, is heated to the viscid temperature, is thereafter adhered to a flexible surface and pulled away from the surface to pull a plurality of fiber-like projections outwardly from the layer at substantially right angles to the traveling direction of the flexible surface to form a multiplicity of fibrils, resembling fur, on the flexible surface. The process of the invention exhibits surprisingly good results when an inert gaseous medium is fed under pressure to the fibrils of the thermoplastic material during the formation of the fiber-like pro-

jections to simultaneously effect cooling and tensioning of the fibrils to impart further lengthening of the inner ends



of the fibrils and separation of the fibrils from the heated roll.

3,708,566

METHOD FOR POLYMER CASTING FROM INLET RESERVOIR

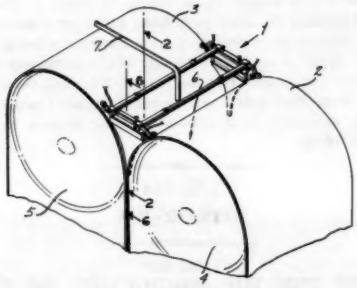
Bernhard T. Junker, Foster City, Calif., and Terry G. Breeding, University, and Michael T. Hoyt and Ross M. Hedrick, St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo.

Continuation-in-part of application Ser. No. 495,284, Oct. 12, 1965. This application Aug. 27, 1968, Ser. No. 755,664

The portion of the term of the patent subsequent to Jan. 14, 1986, has been disclaimed

Int. Cl. B29d *7/14*

U.S. Cl. 264—171 **4 Claims**



An inlet reservoir for use in conjunction with a continuous polymer casting machine which forms an endless sheet or film of a polymeric material within a cavity developed between a pair of mold forming surfaces; said reservoir including a pair of side plates that are designed to conform to the shape of the proximate mold forming surfaces, and including movable sealing gaskets that dispose intermediate the edges of said plates and the mold forming surfaces to preclude seepage of the retained monomer or polymer. This reservoir is of adjustable width, and support means upon the plates includes expandable bracing that regulates the reservoir width, and also casters that ride upon the mold forming surfaces stabilize the reservoir in relation to said surfaces. Since the sealing gaskets further extend between the mold forming surfaces, and are pressed firmly therein, movement of these surfaces during the casting operation also sustains movement of the gaskets, while the gaskets simultaneously act as edge-sealing means for the mold cavity thereby preventing leakage of the polymer while being cast.

3,708,567

MAKING EPOXY SPECTACLE FRAMES USING EXCESS 1 - CYCLOHEXYLAMINO - 3-AMINOPROPANE CURING AGENT

Gerald Hampel, Vienna, Austria, assignor to Optipatent AG, Zug, Switzerland

No Drawing. Continuation-in-part of applications Ser. No. 688,972, Dec. 8, 1967, and Ser. No. 885,471, Dec. 16, 1969. This application Apr. 27, 1970, Ser. No. 32,443

Claims priority, application Germany, Dec. 20, 1966, 54,422

Int. Cl. B29d *12/02;* **G02c** *5/00*

U.S. Cl. 264—331 **6 Claims**

A method for the manufacture of spectacle frames and components thereof having excellent flexural strength and impact strength. Polyepoxides are mixed with a greater than stoichiometric amount of 1 - cyclohexylamino-3-aminopropane to form a molding composition. An amount between 1.1 and 1.5 times the stoichiometric amount is used. Molds filled with the composition are treated at a temperature of at least about 70° C. to produce cured, hardened molded components.

ERRATUM

For Class 423—5 see:
Patent No. 3,708,267

3,708,568

REMOVAL OF PLUTONIUM FROM PLUTONIUM HEXAFLUORIDE-URANIUM HEXAFLUORIDE MIXTURES

Waldo R. Golliher; Robert L. Harris, and Reynold A. LeDoux, Jr., all of Paducah, Ky., assignors to The United States of America as represented by the United States Atomic Energy Commission

Filed Oct. 20, 1970, Ser. No. 82,508

Int. Cl. C01g *56/00*

U.S. Cl. 423—6 **3 Claims**

This invention relates to a method of selectively removing plutonium values from a fluid mixture containing plutonium hexafluoride and uranium hexafluoride by passing the mixture through a bed of pelletized cobaltous fluoride at a temperature in the range 134° to 1,000° F. to effect removal of plutonium by the cobaltous fluoride.

3,708,569

BURNING UNCONVERTED H-OIL RESIDUAL

William R. Mounce, Cranbury, N.J., assignor to Cities Service Research & Development Company, New York, N.Y.

Filed Dec. 17, 1970, Ser. No. 99,202

Int. Cl. C01d *17/04*

U.S. Cl. 423—574 **4 Claims**

A method of treating a vacuum or atmospheric residuum oil containing sulfur is disclosed in which the residuum is subjected to a high pressure, high temperature hydrocracking and desulfurization evolving hydrogen sulfide (H_2S) as a result. Afterward the unconverted residuum is used as fuel in a furnace, evolving sulfur dioxide (SO_2) as one of the stack gases. The SO_2 in the stack gas is removed and reacted with the H_2S evolved during the residuum hydrocracking step to yield elemental sulfur.

3,708,570

PERFLUORO AMMONIUM CATION-CONTAINING IONIC SALTS AND PROCESS FOR PREPARING THEM

Wesley E. Tolberg, Atherton; Roger S. Stringham, Woodside, and Robert T. Rewick, Mountain View, all of Calif., assignors to Stanford Research Institute, Menlo Park, Calif.

Filed Jan. 30, 1967, Ser. No. 614,524

Int. Cl. C01b *9/08*

U.S. Cl. 423—301 **6 Claims**

Solid ionic salts exemplified by perfluoro ammonium hexafluoro antimonate having the highly energetic perfluoro am-

monium cation (NF_4^+), are produced by interreacting gaseous nitrogen trifluoride, gaseous fluorine, and liquid antimony pentafluoride (in the presence or absence of hydrogen fluoride), this reaction being preferably effected at a temperature of between about 100° C. and about 200° C., and at a superatmospheric pressure in the range of from about 50 atmospheres to about 200 atmospheres. The use of arsenic perfluoride, phosphorus perfluoride, or bismuth perfluoride, instead of the antimony perfluoride, results in the formation of the corresponding arsenate, phosphate or bismuthate salt, all of which are very stable, are powerful fluorination agents, and useful as oxidants.

3,708,571

PREPARATION OF FLUORAMINE

Vytautas Grakauskas, Arcadia, Calif., assignor to the United States of America as represented by the Secretary of the Navy

No Drawing. Filed Sept. 30, 1966, Ser. No. 584,060
Int. Cl. C01 *21/52*
U.S. Cl. 423—413 8 Claims

There is disclosed a process of preparing fluoramine. A solution of ethyl N-fluorocarbamate in concentrated sulfuric acid is heated to 90–95° C. carbon dioxide being thereby evolved. Upon dilution with water fluoramine is generated in situ.

3,708,572

INFECTIOUS MONONUCLEOSIS DIAGNOSTIC REAGENT AND METHOD

Frans Peetoom, Westwood, and Sandra Jean Kiddy, Pasadena, Calif., assignors to Baxter Laboratories, Inc., Morton Grove, Ill.

No Drawing. Filed Mar. 26, 1969, Ser. No. 810,827
Int. Cl. G01n *31/00, 33/16*
U.S. Cl. 424—12 3 Claims

A reagent and method for the diagnosis of infectious mononucleosis employing horse erythrocytes which have been subjected to aldehyde fixation, specific sensitization with antiserum to Forssman-like antigens and then another fixation with said aldehyde.

3,708,573

AGRICULTURAL AND HORTICULTURAL GRANULE FORMULATION AND METHODS FOR PREPARING THE SAME AND FOR USING THEREOF

Eiichi Yoshinaga, Fujieda, Yoshio Takahashi, Shimizu, and Masaru Kado, Yokohama, Japan, assignors to Kumiai Chemical Industry Co., Ltd., Tokyo, Japan

No Drawing. Filed Feb. 27, 1970, Ser. No. 15,252
Claims priority, application Japan, Mar. 15, 1969, 44/19,228
Int. Cl. A01n *17/00*
U.S. Cl. 424—23 2 Claims

An effective and practical agricultural and horticultural granule formulation prepared by uniformly adsorbing an active ingredient of agricultural chemicals, organophosphoric acid ester, which may generally be used, and said active ingredient or auxiliary agent into granular zeolite and the practical and useful method of using thereof for controlling plant diseases, injurious insects and weeds.

3,708,574

PHARMACEUTICAL COMPOSITIONS PROVIDING POTASSIUM CHLORIDE IN AQUEOUS SOLUTION

Alfred Eric Corker, Brighton, England, assignor to Arthur H. Cox & Co., Limited, Brighton, England

Continuation of Ser. No. 722,544, April 19, 1968, abandoned. This application Oct. 13, 1970, Ser. No. 80,469
Claims priority, application Great Britain, April 28, 1967, 19,796/67
Int. Cl. A61k *9/00*
U.S. Cl. 424—44 1 Claim

Aqueous solutions containing potassium chloride, useful for the treatment of hypokalaemia, are obtained by dissolving in water or an aqueous medium compositions comprising a mixture of a solid, water-soluble hydrochloride of a physiologically innocuous nitrogen-containing organic compound e.g. betaine hydrochloride, which dissociates an addition to water to yield an acid solution containing hydrochloric acid and the organic base, and at least one of potassium bicarbonate and potassium carbonate.

3,708,575

METHOD FOR THE TREATMENT OF ATHEROSCLEROSIS EMPLOYING GLUCURONOGLYCOSAMINOGLYCAN-HYALURONATE-LYASE

Siegfried Gottfried, Ilford, England, assignor to Biorex Laboratories Limited, London, England

No Drawing. Continuation-in-part of application Ser. No. 756,314, Aug. 29, 1968. This application May 13, 1970, Ser. No. 37,016
Int. Cl. A61k *19/00*
U.S. Cl. 424—94 4 Claims

The present invention is concerned with a method for the treatment of cardiac, arrythmias, thrombi, atherosclerosis, cerebral infarcts, cerebral thromboses, coronary thromboses and cardiac infarcts, by the intravenous, intra-arterial or intrathecal injection of glucuronoglycosaminoglycan-hyaluronate-lyase.

3,708,576

NOVEL ANTI-INFLAMMATORY SUBSTANCES AND PRODUCTION THEREOF

Mamoru Sugiura, Konan; Kunio Kano, Ibaraki; Kazuaki Kimura, Yao, and Hiroyuki Oono, Nishinomiya, all of Japan, assignors to ONO Pharmaceutical Co., Ltd., Osaka, Japan

Filed May 8, 1970, Ser. No. 35,756
Claims priority, application Japan, May 9, 1969, 44/35877
Int. Cl. A61k *21/00*
U.S. Cl. 424—115 5 Claims

Novel anti-inflammatory substances are provided by culturing a microorganism such as *Aerobacter cloacae*, *Aerobacter aerogenes*, *Bacillus subtilis*, *Micrococus lysodeikticus* or *Pseudomonas aeruginosa* in a nutrient medium and recovering the novel substance from the fermentation broth.

3,708,577

ANTIBIOTIC X–5108 AND METHODS FOR THE PRODUCTION THEREOF

Julius Berger, Passaic, N.J., assignor to Hoffmann-La Roche Inc., Nutley, N.J.

Filed Aug. 14, 1970, Ser. No. 64,389
Int. Cl. A61k *21/00*
U.S. Cl. 424—121 8 Claims

A new antibiotic, designated as antibiotic X–5108, is produced by a new species of Streptomyces. The new antibiotic is active against gram-positive and gram-negative bacteria and produces growth stimulation and increased feed efficiency in poultry.

3,708,578

COMPOSITION AND METHOD FOR INHIBITING THE GROWTH OF ANIMAL PATHOGENS

Naba K. Das, Columbia, Md., assignor to W. R. Grace & Co., New York, N.Y.

Filed Jan. 21, 1971, Ser. No. 108,639
Int. Cl. A61k *27/00*
U.S. Cl. 424—141 9 Claims

Isobutyrates in combination with water soluble copper salts are effective in inhibiting the growth of animal and poultry pathogens.

3,708,579

ANTI-ARTHRITIC COMPOSITIONS COMPRISING A TRIALKYLPHOSPHINEGOLD COMPLEX OF A 1-β-D-GLUCOPYRANOSIDE AND METHODS OF PRODUCING ANTI-ARTHRITIC ACTIVITY

Elizabeth R. McGusty, Philadelphia, and Blaine M. Sutton, Hatboro, Pa., assignors to Smith Kline & French Laboratories, Philadelphia, Pa.

No Drawing. Continuation-in-part of application Ser. No. 871,956, Oct. 28, 1969, now Patent No. 3,635,945, dated Jan. 18, 1972. This application Oct. 1, 1971, Ser. No. 185,845

Int. Cl. A61k *27/00*

U.S. Cl. 424—180 14 Claims

Pharmaceutical compositions having anti-arthritic activity comprising a trialkylphosphinegold complex of a 1-β-D-glucopyranoside and methods of producing anti-arthritic activity by administering internally, preferably orally, said compositions.

3,708,580

METHOD OF CONTROLLING INSECTS USING QUINOXALINYL N -OXIDE PHOSPHATES

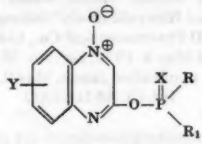
Bernard Miller, Plainsboro, and Jackson Pollard English, Princeton, both of N.J., assignors to American Cyanamid Company, Stamford, Conn.

Division of Ser. No. 658,598, Aug. 7, 1967, Pat. No. 3,621,021. This application July 14, 1970, Ser. No. 62,737

Int. Cl. A01n *9/00, 9/36*

U.S. Cl. 424—200 12 Claims

Novel quinoxalinyl N_1-oxide phosphates together with their preparation and use for controlling insects and arachnids are disclosed. They have the formula:



wherein R and R_1 each are selected from the group consisting of lower alkyl, lower alkoxy, lower alkylthio, phenyl, halo-substituted phenyl, lower alkyl-substituted phenyl, and NR_2 groups wherein R_2 is hydrogen or lower alkyl; X is sulfur or oxygen; and Y is hydrogen, halogen, lower alkyl or lower alkoxy.

3,708,581

ANTI-INFLAMMATORIES

William Rodney Roderick, Libertyville, Ill., assignor to Abbott Laboratories, Chicago, Ill.

No Drawing. Filed June 9, 1971, Ser. No. 151,482

Int. Cl. A61v *27/00*

U.S. Cl. 424—263 4 Claims

3-amino-2-pyridinethiol has been found to have excellent anti-edema, anti-pyretic and analgesic effects when administered orally to warm-blooded animals at a dosage of between 0.5 and 50 mg./kg.

3,708,582

METHODS OF COMBATTING FUNGI, NEMATODES AND INSECTS WITH SULFINYL THIOL- AND DITHIO-PHOSPHATES

Paul C. Aichenegg, Prairie Village, Kans., and Richard A. Thornhill, Kansas City, Mo., assignors to Baychem Corporation, New York, N.Y.

No Drawing. Original application Mar. 4, 1969, Ser. No. 804,272, now Patent No. 3,629,375. Divided and this application Mar. 1, 1971, Ser. No. 119,853

Int. Cl. A01n *9/36*

U.S. Cl. 424—208 12 Claims

Sulfinyl thio- and dithio-phosphates, i.e., O,O-dialkyl-S-(trichloroethyl and dichlorovinyl sulfinyl)-thiol- and dithio-phosphates, or O,O-dialkyl-S-(trichloroethyl thionyl and dichlorovinyl thionyl) thiol- and thionothiol-phosphates, which possess strong fungicidal, nematocidal and insecticidal properties and which may be produced by conventional methods.

3,708,583

STABILIZED VITAMIN A ADDITIVE

Willis L. Winstrom; John T. Engel; Alan D. Sigler, and George David Thomas, all of Omaha, Nebr., assignors to Vitamin Premixers of Omaha, Inc., Omaha, Nebr.

Filed April 3, 1970, Ser. No. 25,586

Int. Cl. A61k *15/02*

U.S. Cl. 424—312 4 Claims

A stabilized vitamin additive is disclosed herein which comprises, in solution, fat-soluble vitamins, an alkyl alcohol wherein the alkyl moiety contains from one to three carbon atoms, and an emulsifier system. By utilizing these components in combination, biological deterioration and degradation of the vitamins during storage is substantially alleviated, the vitamin additive is pourable at low temperatures, and the vitamin additive does not separate, segregate or cream at high or low temperatures.

3,708,584

3-(HYDROXY-PHENYL) SUBSTITUTED AMIDINES AND DERIVATIVES THEREOF AS ANTHELMINTIC AGENTS

James W. McFarland, Lyme, Conn., assignor to Pfizer Inc., New York, N.Y.

No Drawing. Original application Aug. 30, 1967, Ser. No. 664,258, now Patent No. 3,579,510, dated May 18, 1971. Divided and this application Mar. 10, 1970, Ser. No. 23,114

Int. Cl. A61k *27/00*

U.S. Cl. 424—251 4 Claims

The preparation and anthelmintic properties of certain ω-(3-R-O-phenyl)substituted cyclic and acyclic amidines; namely, 1,4,5,6-tetrahydro - 2 - [2-(3-R-phenyl)ethyl]pyrimidines, 1,4,5,6 - tetrahydro-2-[2-(3-R-O-phenyl)vinyl] pyrimidines and the corresponding 2-imidazolines; and N-methyl - N - substituted 3-(3-R-O-phenyl)propionamidines and the corresponding acrylamidines where R-O- is hydroxy or a group convertible to hydroxy, is described.

3,708,585

METHOD OF ENHANCING LEARNING

Nicholas Peter Plotnikoff, Lake Bluff, Ill., assignor to Abbott Laboratories, North Chicago, Ill.

No Drawing. Continuation-in-part of abandoned application Ser. No. 85,311, Oct. 29, 1970. This application Feb. 10, 1972, Ser. No. 226,240

Int. Cl. A61k *27/00*

U.S. Cl. 424—251 8 Claims

Covers a pharmaceutical composition containing uracil, thymine, or cytosine which has an enhancing effect in learning rate and retention level of animals. Also covers a method of their use.

3,708,586

METHOD OF ADMINISTERING CENTRAL NERVOUS SYSTEM ACTIVE COMPOUNDS

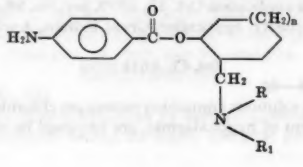
Pierre Simon, Sevres, France; Jack Bernstein, New Brunswick, and John Krapcho, Somerset, both of N.J., assignors to E. R. Squibb & Sons, Inc., New York, N.Y.

Filed Oct. 6, 1970, Ser. No. 78,569

Int. Cl. A61k *27/00*

U.S. Cl. 424—309 7 Claims

A method of stimulating the central nervous system and of enhancing behavior by administering an effective amount of a compound of the formula



and pharmaceutically acceptable acid addition salts thereof wherein *n* is 0, 1 or 2, R is hydrogen or lower alkyl of up to four carbons, R_1 is lower alkyl of up to four carbon atoms, and R and R_1 together with the nitrogen atom to which they are bonded are piperidino, morpholino or pyrrolidino.

3,708,587

HYPOCHOLESTEROLEMIC PHENOXY-ALIPHATIC ACID COMPOSITIONS

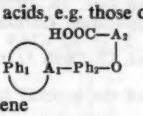
William Laszlo Bencze, New Providence, N.J., assignor to Ciba-Geigy Corporation

No Drawing. Continuation-in-part of application Ser. No. 32,765, Apr. 28, 1970, which is a continuation-in-part of application Ser. No. 795,029, Jan. 29, 1969, now Patent No. 3,641,110, which is a continuation-in-part of application Ser. No. 728,871, May 14, 1968, now abandoned, which is a continuation-in-part of application Ser. No. 558,251, June 17, 1966, now abandoned, which in turn is a continuation-in-part of application Ser. No. 323,868, Nov. 15, 1963, now abandoned. This application June 8, 1970, Ser. No. 44,552

Int. Cl. A61k *27/00*

U.S. Cl. 424—317 **6 Claims**

Phenoxy-aliphatic acids, e.g. those of the formula



Ph_1=a 1,2-phenylene

Ph_2=a 1,2-, 1,3- or 1,4-phenylene

A_1=alkenylene forming 5–7 membered ring

A_2=aliphatic hydrocarbon radical

and functional derivatives thereof are hypocholesterolemic agents.

3,708,588

COMPOSITIONS AND METHODS OF USE FOR PREVENTING PREGNANCY IN WARM-BLOODED ANIMALS USING 4-PHENYL-BICYCLO[2.2.2.]OCTANE, AND OCT-2-ENE, -1-CARBOXYLATES

Paul Edward Aldrich, 306 Spalding Road, Sharpley, Wilmington, Del. 19803, and Edward Charles Hermann, 8 Calgary Road, Newark, Del. 19711

No Drawing. Continuation-in-part of abandoned application Ser. No. 688,973, Dec. 8, 1967. This application Nov. 16, 1970, Ser. No. 90,008

Int. Cl. A61k *9/04, 27/12*

U.S. Cl. 424—317 **8 Claims**

This disclosure teaches the method of using 4-phenyl-bicyclo[2.2.2]octane, and oct-2-ene, -1-carboxylates as antifertility agents. The disclosure further teaches of pharmaceutical compositions employing said compounds.

3,708,589

HYPOCHOLESTEROLEMIC PHENOXY-ALIPHATIC ACID COMPOSITIONS

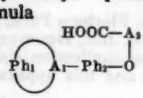
William Laszlo Bencze, New Providence, N.J., assignor to Ciba-Geigy Corporation

No Drawing. Continuation-in-part of application Ser. No. 795,029, Jan. 29, 1969, now Patent No. 3,641,110, which is a continuation-in-part of application Ser. No. 728,871, May 14, 1968, which is a continuation-in-part of application Ser. No. 558,251, June 17, 1966, which in turn is a continuation-in-part of application Ser. No. 323,868, Nov. 15, 1963, now abandoned. This application Oct. 31, 1969, Ser. No. 873,107

Int. Cl. A61k *27/00*

U.S. Cl. 424—317 **3 Claims**

Oxygenated benzcycloalkyl - phenoxy-aliphatic acids, e.g. those of the formula



Ph_1=a 1,2-phenylene

Ph_2=a 1,2-, 1,3- or 1,4-phenylene

A_1=mono- or dihydroxy-alkylene or alkanoylene forming 5–7 membered ring

A_2=aliphatic hydrocarbon radical

and functional derivatives thereof are hypocholesterolemic agents.

3,708,590

METHOD OF CONTROLLING ACARIDS WITH CERTAIN OXIME ESTERS

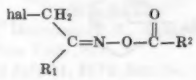
Arnold D. Gutman, San Rafael, Calif., and Don R. Baker, Pinole, Calif., assignors to Stauffer Chemical Company, New York, N.Y.

Division of Ser. No. 746,309, July 22, 1968, Pat. No. 3,592,920. This application July 2, 1970, Ser. No. 60,959

Int. Cl. A01n *9/24*

U.S. Cl. 424—327 **13 Claims**

Acaricidal, fungicidal and bacterial compounds having the formula



in which hal is chlorine, bromine or iodine, R^1 is (1) hydrogen, (2) lower alkyl, (3) aryl, (4) nuclear substituted derivatives thereof in which the substituents are halogen, nitro, lower alkoxy, lower alkyl, or cyano and (5) haloalkyl, and R^2 is (1) aryl, (2) nuclear substituted derivatives thereof in which the substituents are halogen, cyano, nitro, lower alkoxy, or lower alkyl, (3) styryl, (4) nuclear substituted styryl, in which the substituents are halogen, cyano, nitro, lower alkoxy or lower alkyl, (5) benzyl, (6) nuclear substituted benzyl in which said substituents are halogen, cyano, nitro, lower alkoxy or lower alkyl, (7) phenethyl, (8) nuclear substituted phenethyl in which the substituents are halogen, cyano, nitro, lower alkoxy, or lower alkyl, (9) cycloalkyl having three to six carbon atoms, and (10) furyl.

3,708,591

CERTAIN FORMYLHYDRAZONES USED AS APHICIDES

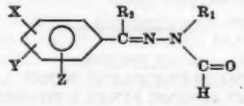
Horst O. Bayer, Levittown, and William S. Hurt, Norristown, Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

No Drawing. Filed Mar. 18, 1970, Ser. No. 20,863

Int. Cl. A01n *9/20*

U.S. Cl. 424—327 **3 Claims**

Compositions and methods for controlling aphids and mites, which comprises a compound of the formula:



(I)

wherein X, Y, and Z are individually selected from one of hydrogen, alkyl of one to three carbons; halogen, such as fluoro, chloro, iodo, and bromo; but they are not all hydrogen concurrently. R_1 and R_2 are selected from one of hydrogen and alkyl of one to three carbons.

3,708,592

2,4-DIHYDRO - 6 - PHENYL-1H-s-TRIAZOLO[4,3-a][1,4]BENZODIAZEPIN - 1 - ONE COMPOSITIONS AND METHOD OF TREATMENT

Jackson B. Hester, Jr., Galesburg, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

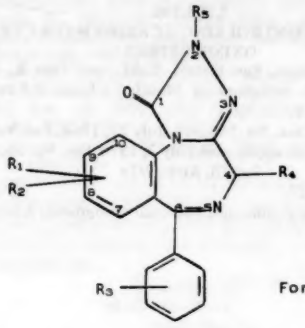
No Drawing. Continuation-in-part of application Ser. No. 852,112, Aug. 21, 1969, now Patent No. 3,646,055, dated Feb. 29, 1972. This application Nov. 18, 1971, Ser. No. 200,202

Int. Cl. A61k *27/00*

U.S. Cl. 424—269 **17 Claims**

Therapeutic compositions for treating humans and animals comprising, in dosage unit form a 2,4-dihydro-6-

phenyl-1H-s-triazolo[4,3-a][1,4]benzodiazepin - 1 - one compound of the formula:



Formula I

wherein R_1, R_2, and R_3 are selected from the group consisting of hydrogen, alkyl of 1 to 3 carbon atoms, inclusive, halogen, nitro, cyano, trifluoromethyl, and alkoxy, alkylthio, alkylsulfinyl, alkylsulfonyl, alkanoylamino and dialkylamino, in which the carbon chain moieties are of 1 to 3 carbon atoms, inclusive, and wherein R_4 and R_5 are selected from the group consisting of hydrogen and alkyl of from 1 to 3 carbon atoms including the pharmacologically acceptable acid addition salts thereof in combination with a pharmaceutical carrier. The compositions have CNS depressant activity and are useful as tranquilizers, e.g., to reduce anxiety. The compositions are also useful as sedatives, hypnotics, muscle relaxants and anticonvulsants. The compositions can be administered to human or animal subjects.

3,708,593

USE OF L-PROLYL L-LEUCYL GLYCINE AMIDE AS AN ANTI-DEPRESSANT

Nicholas Peter Plotnikoff, Lake Bluff, Ill., assignor to Abbott Laboratories, Chicago, Ill.

No Drawing. Filed Aug. 24, 1971, Ser. No. 174,548

Int. Cl. A61k *27/00*

U.S. Cl. 424—274 **4 Claims**

Covers a method of treating patients exhibiting symptoms of depression by administering to said patient L-prolyl L-leucyl glycine amide.

3,708,594

PROCESS FOR MANUFACTURING A PREPARATION CONTAINING FINELY DIVIDED CHLORAMPHENICOL PALMITATE

Eiichiro Akito, Yono, Toshitsugu Takagi and Yakio Soda, Tokyo, and Masataka Ishibashi, Souka, Japan, assignors to Nippon Kayaku Co., Ltd., Tokyo, Japan

Filed Mar. 30, 1970, Ser. No. 23,946

Claims priority, application Japan, Mar. 31, 1969, 44/23,845

Int. Cl. A61k *27/00*

U.S. Cl. 424—324 **10 Claims**

When chloramphenicol palmitate compounded with casein, gum arabic, or their mixture, and, if necessary, a preservative such as dihydro acetic acid, and a saccharide such as sugar, etc. was added to distilled water, heated to about 100° C. to melt, strongly stirred to emulsify, and cooled under stirring, a suspension of finely divided chloramphenicol palmitate particles can be obtained. Further, the suspension can be lyophilized or spray-dried to obtain powder medicines. These preparations are excellent in hydrolysis percentage by digestive enzyme (pancreatin) and blood serum level in comparison with the conventional product.

3,708,595

α-NITRO-ω-OXIMINO CYCLOALKANONES AS FUNGICIDES

Robert Fuhrmann, Morris Plains, John Pisanchyn, Morristown, and Stylianos Sifniades, Parsippany, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed Oct. 30, 1970, Ser. No. 85,759

Int. Cl. A01n *9/20*

U.S. Cl. 424—327 **6 Claims**

α-Nitro-ω-oximino cycloalkanones are effective fungicides and fungistats. In particular, they are effective against rust type fungi. The preferred compound is 2-nitro-6-oximino cyclohexanone.

3,708,596

DISAZO DYESTUFFS

Wilhelm Happe, Schwalbach, Taunus, and Hans Jakob Schladetsch, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

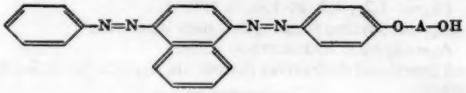
No Drawing. Filed Dec. 16, 1970, Ser. No. 98,901

Claims priority, application Germany, Dec. 19, 1969, P 19 63 674.9

Int. Cl. C09b *31/02*

U.S. Cl. 260—174 **4 Claims**

Disazo dyestuffs of the general formula



wherein A is an alkylene group, which dyestuffs give orange shades and are used for dyeing and printing textile fibrous materials, especially polyethylene glycol terephthalates.

3,708,597

N-CINNAMYL-4-(3'-HYDROXYPHENYL)-4-PROPIONYL-PIPERIDINE AND SALTS

Herbert Merz, Rheinstrasse 168, Ingelheim am Rhein, Germany; Kurt Freter, 196 Kenton Ave., Beaconsfield, Quebec, Canada; and Karl Zeile, Taunusstrasse 11, Ingelheim am Rhein, Germany

No Drawing. Continuation of application Ser. No. 869,955, Oct. 27, 1969, which is a continuation of application Ser. No. 744,325, July 12, 1968, which is a continuation-in-part of application Ser. No. 350,128, Mar. 6, 1964, which in turn is a continuation-in-part of application Ser. No. 177,121, Mar. 5, 1962, all now abandoned. This application Feb. 19, 1971, Ser. No. 117,121

Claims priority, application Germany, Mar. 6, 1961, P 12 94 381.6-44

Int. Cl. C07d *29/16*

U.S. Cl. 260—240 K **3 Claims**

N-cinnamyl-4-(3'-hydroxy-phenyl) - 4 - propionyl-piperidine and non-toxic, pharmacologically acceptable acid addition salts thereof, useful as analgesics in warm-blooded animals.

3,708,598

SUBSTITUTED 2,4 - (ω-AMINOALKOXY) PHENYL IMIDAZOLES AS CHOLESTEROL REDUCING AGENTS

Rudolf G. Griot, Florham Park, N.J., assignor to Sandoz, Inc., Hanover, N.J.

No Drawing. Original application Apr. 29, 1968, Ser. No. 725,179. Divided and this application July 10, 1970, Ser. No. 61,026

Int. Cl. A61k *23/00*

U.S. Cl. 424—273 **4 Claims**

This invention relates to 4,5-dicyclosubstituted-2-[4-(ω-aminoalkoxy)phenyl]imidazoles useful as hypolipidemics, and to preparation of said compounds.

ELECTRICAL

3,708,599
HIGH TEMPERATURE APPARATUS

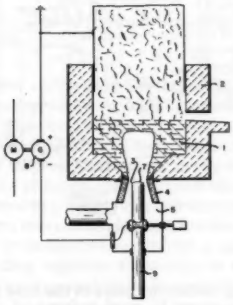
Wilhelm Krause, Essen, Germany, assignor to Thermal Transfer Corporation

Filed April 22, 1971, Ser. No. 136,506

Claims priority, application Germany, July 2, 1971, P 19 55 339.0; June 23, 1971, P 19 51 824.2

Int. Cl. H05b *7/18*

U.S. Cl. 13—1 **10 Claims**



A high temperature furnace unit is provided for melting metals which comprises a furnace container having at least one tuyere adjacent the bottom, at least one electrode in each such tuyere, a source of high voltage electrical current connected to said electrode capable of arc within said container, a source of combustible gas connected to each said tuyere feeding gas around the electrode at a pressure sufficient to form a pocket of gas around the electrode at the end of the tuyere.

3,708,600
VACUUM INDUCTION MELTING FURNACES

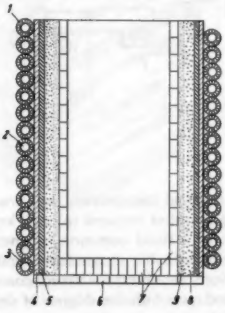
Ernst Gunter Nickel, Hagen-Bohlerheide; Hans Peter Severin, Sprockhovel, and Helmut Frye, Essen, all of Germany, assignors to Deutsche Edelstahlwerke Aktiengesellschaft, Krefeld, Germany

Filed July 14, 1971, Ser. No. 162,567

Claims priority, application Germany, Aug. 1, 1970, P 20 38 442.3

Int. Cl. A43d *43/00*

U.S. Cl. 13—27 **8 Claims**



Vacuum induction furnaces comprising a crucible having a lining layer of bricks of sintered fusible lime, and surrounded by an insulated inductive heating coil present a problem of preventing metal break-out during use. This problem is overcome according to the invention by the provision of a crucible comprising three layers, namely progressing inwardly a heat-insulating ceramic layer, a rammed oxide layer and the said lining layer, the thickness of the said layers being selected so that in use the rammed oxide layer sinters in a zone adjacent the lining layer, the unsintered zone thus taking up movement due to contraction and expansion effects of the crucible in use.

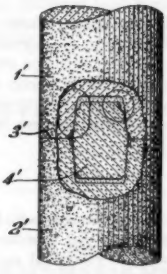
3,708,601
ELECTRODE JOINT HAVING UNDERCUT ELECTRODE SOCKETS

Philip E. Kozak, Humacao, P.R., assignor to Union Carbide Corporation, New York, N.Y.

Filed July 21, 1971, Ser. No. 164,773

Int. Cl. H05b *7/14*

U.S. Cl. 13—18 **2 Claims**



An electrode joint comprising two end-face electrode sections having female threaded sockets designed for mating with a male threaded nipple so that when joined by the nipple, all the threads at the base of the electrode socket will be engaged with mating threads on the nipple.

3,708,602
ELECTRONIC ORGAN WITH AUTOMATIC CHORD AND BASS SYSTEMS

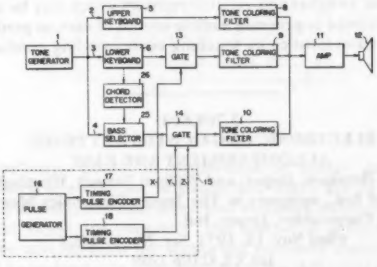
Ryu Hiyama, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Japan

Filed Oct. 29, 1970, Ser. No. 84,979

Claims priority, application Japan, Oct. 29, 1969, 44/86713; Oct. 29, 1969, 44/86714; Oct. 29, 1969, 44/86715; Oct. 29, 1969, 44/86716

Int. Cl. G10f *1/00*

U.S. Cl. 84—1.03 **2 Claims**



In an electronic musical instrument having an upper keyboard for melody performance, a lower keyboard for

chord performance and a pedal keyboard for bass performance, there is interposed a first gate circuit in the channel of the lower keyboard tone signals and a second gate circuit in the channel of the bass tone signals, and there is also provided a generator of rhythm pattern pulses which open the gate circuits in accordance with the rhythm pattern. On this instrument, chord and bass performance is carried out in desired rhythm pattern by merely depressing keys continuously instead of intermittently.

3,708,603

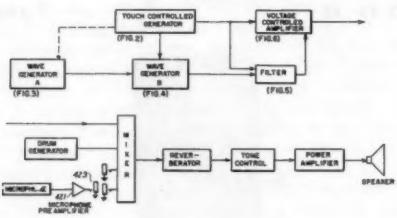
ELECTRONIC SOUND SYNTHESIZER

Charles Keagle, 312 East 9th Street, Apt. 6, New York, N.Y.; Alan Waggoner, 1512 East McGraw Street, Seattle, Wash., and Peter Phillips, 61 Grove Street, New York, N.Y.

Filed March 1, 1971, Ser. No. 119,714

Int. Cl. G10h *3/00*

U.S. Cl. 84—1.11 **31 Claims**



An electronic sound synthesizer which includes a touch controlled voltage generator for selectively controlling the generation of a plurality of electrical signals and means for converting the signals into audible sounds. The generator includes a plurality of electronic switches in series with variable resistors, a direct current current summing amplifier and a plurality of conductive paths for selectively connecting the switches to the d.c. current summing amplifier. Each of the conductive paths has a pair of flat conductor members spaced from each other by a dielectric member. These conductor members are designed so that when a finger touches the members of a pair a conducting path is formed to energize the corresponding switch. The synthesizer may also include means for modulating and filtering the output signals of voltage sensitive wave generators controlled in turn by other wave generators or by the touch controlled voltage generator, or both. It also includes means for modifying the attack and decay amplitude characteristics of the filtered output signals before they are converted into sounds. The converting means may include a mixer, a reverberator, a tone control circuit, a power amplifier, and a speaker, all of which are interconnected and may combine the output signals of the various touch controlled generators. Alternatively, the synthesizer may have means including a plurality of ringing circuits, instead of the electronic switches and variable resistors which may be selectively actuated to generate audible sounds of various predetermined characteristics by touching corresponding conductive paths.

3,708,604

ELECTRONIC ORGAN WITH RHYTHMIC ACCOMPANIMENT AND BASS

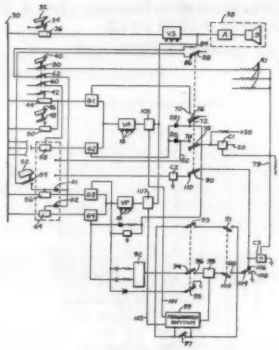
Richard Hebeisen, Jasper, and William Tevault, Huntingburg, both of Ind., assignors to The Jasper Electronics Manufacturing Corporation, Jasper, Ind.

Filed Nov. 15, 1971, Ser. No. 198,801

Int. Cl. G10h *1/00*

U.S. Cl. 84—1.03 **21 Claims**

An electronic organ having upper and lower and pedal keyboards and selectively adjustable for conventional playing in which each key of the lower keyboard and the pedals of the pedal keyboard play single notes, or for rhythmic playing in which selected ones of the keys of the lower keyboard play chords while also alternately playing notes pertaining to the pedal keyboard related to the respective chord. During



rhythmic playing, electronic gates in the tone signal paths are controlled rhythmically by control pulses so as to pass tone signals according to rhythmic patterns. Gates for the pedal tones pass single related base notes while gates for the lower keyboard pass notes corresponding to chords related to the base notes.

3,708,605

MAGNETICALLY OPERATED KEYING DEVICE FOR AN ELECTRONIC MUSICAL INSTRUMENT WITH TOUCH RESPONSIVE CONTROL

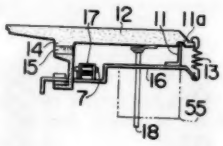
Junji Ohno, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Shizuoka, Japan

Filed June 23, 1970, Ser. No. 48,959

Claims priority, application Japan, June 28, 1969, 44/61426; June 28, 1969, 44/61427; June 28, 1969, 44/61428; June 28, 1969, 44/61429; Aug. 19, 1969, 44/78648; Aug. 19, 1969, 44/78649

Int. Cl. G10h *3/08*

U.S. Cl. 84—1.1 **12 Claims**



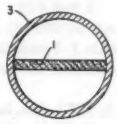
In electronic musical instruments, by arranging a magnetically-conducting member secured to each key in spaced relationship relative to a fixed common magnetized member so that when the displaceable magnetism-conducting members shift their positions relative to a fixed common magnetized member in accordance with the degree of depression of keys, the variance in the intensity of the magnetic flux generated between said movable and fixed members is markedly reduced as compared with the arrangement where a magnetized member is secured to each. Further the manufacture of the instrument can be performed at a much lower cost and with much greater ease using this arrangement.

3,708,606

CRYOGENIC SYSTEM INCLUDING VARIATIONS OF HOLLOW SUPERCONDUCTING WIRE

Walter J. Shattes, Bloomfield; William G. Marancik, Basking Ridge, and Bradley S. Kirk, Warren, all of N.J., assignors to Air Reduction Company, Incorporated, New York, N.Y.

Filed May 13, 1970, Ser. No. 36,741
Int. Cl. H01b 7/34; H01v 11/00
U.S. Cl. 174—15 C 24 Claims



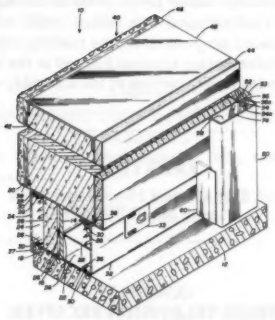
A core element comprising superconducting strands in a normally conducting matrix is initially extruded in a desired cross-sectional shape or configuration; and is then interposed in a prefabricated or postfabricated tube, and coreduced to a final product of desired dimensions, thus providing a matrix having a plurality of longitudinal internal channels. The core elements may assume a variety of cross-sectional shapes, such as ribbon, square, cross, triangle, star, annulus, etc., or a composite of these. In an alternative process, a cable is formed by twisting or braiding together a plurality of superconducting matrix wires, prior to coreduction in a prefabricated or postfabricated tube. In another form, a superconducting matrix strip is welded to form a tube. In a variation of this, superconductor wires are interposed in longitudinal slots in a billet of normally conducting material which is rolled into a ribbon, alternatively formed into a tube. The product of any of these techniques is finally coreduced to a wire which is formed into a coil which may be cooled internally by a forced cooling system including fluid or superfluid helium.

3,708,607

PREFABRICATED WALL SYSTEM

Eugene G. Brode, 1611 Rio Vista Drive, and Jay H. Kleinneiur, 1441 Zangs Boulevard, Apt. 119, both of Dallas, Tex.

Filed March 18, 1971, Ser. No. 125,625
Int. Cl. H02g 3/04
U.S. Cl. 174—48 12 Claims



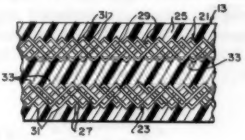
A prefabricated wall system employing laminar wall panels formed from an expanded high density polystyrene core bonded to two outer skins, the panels being mounted on tracks provided by a longitudinally extending base rail which has hollow electrical ducts therein. Removable cover plates carrying electrical service outlets conceal the base rail ducts, and a hollow trim member is removably secured to a panel to carry wiring vertically from the base rail.

3,708,608

ELECTRIC POWER CORD AND METHOD OF MAKING

Dennis G. Wyman, 4 Crestline Court, Owings Mills, Md.

Filed Jan. 20, 1971, Ser. No. 108,092
Int. Cl. H01b 7/08
U.S. Cl. 174—70 R 9 Claims



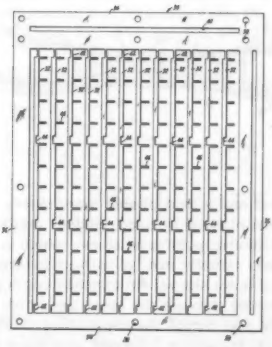
An electric power cord comprising conductors made up of elongated conductive filaments encased by an insulating jacket. The filaments of each conductor are arranged and the jacket constructed to allow easy penetration thereof by conductive prongs of an electrical load member (e.g. a light). In addition, two cords can be placed side by side and electrically spliced by conductive prongs penetrated through the jackets and conductors of the adjacent cords. In the method of manufacture, continuous conductive filaments are juxtaposed and arranged to form apertured conductors and encased (in sets of two or three) with an easily penetrable, insulating material.

3,708,609

LAMINATED BUS BAR ASSEMBLY

Michael F. Iosue, and Andre A. Lernould, both of Danielson, Conn., assignors to Rogers Corporation, Rogers, Conn.

Filed Aug. 17, 1971, Ser. No. 172,415
Int. Cl. H02g 5/00; H01b 7/08, 13/00
U.S. Cl. 174—72 B 14 Claims

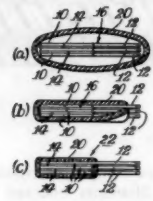


A multilayer conductor intermediate of "ladder" construction wherein conductor subassemblies which are to be employed as bus bars define transverse members interconnecting parallel supporting members. The conductor subassemblies may be severed from the supporting members and/or subdivided by making cuts in regions where the individual conductors of the multilayer structure are of reduced width and both vertically and laterally displaced.

3,708,610
NON-DELAMINATING BUS ASSEMBLY FOR ELECTRONIC SYSTEMS AND METHOD OF FORMING SAME

Charles A. Kozel, McHenry; Nathan A. Baraglia, Stone Park, and George C. Wright, Barrington, all of Ill., assignors to Methode Manufacturing Corp., Rolling Meadows, Ill.

Filed Sept. 8, 1971, Ser. No. 178,562
Int. Cl. H01b *7/08, 13/00*; **H02g** *5/00*
U.S. Cl. 174—72 B **5 Claims**

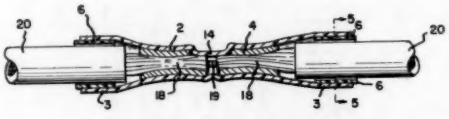


A multilayer, multiconductor or single conductor insulated bus assembly with jacket envelope that will not delaminate or lose capacitance when subjected to high temperatures such as encountered in wave soldering on printed circuit boards or conventional temperature/time soldering cycles. The jacket envelope is formed from an irradiated expanded tube that fits over the conductor bus subassembly and upon application of heat shrinks to a predetermined lesser diameter forming an outer layer about the body of the bus bar subassembly with all connecting terminals extending through openings punched in the jacket.

3,708,611
HEAT SHRINKABLE PREINSULATED ELECTRICAL CONNECTOR AND METHOD OF FABRICATION THEREOF

Leon Joel Dinger, Harrisburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Feb. 14, 1972, Ser. No. 226,140
Int. Cl. H02g *15/08*
U.S. Cl. 174—84 C **3 Claims**

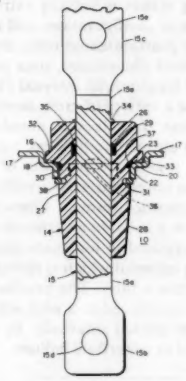


A wire barrel and a heat pliable inner sleeve of polymeric material are maintained in fixed tandem relationship by an outer heat shrinkable polymeric sleeve which is initially only partially shrunk, radially into gripping relationship over the wire barrel and inner sleeve. An exposed conductor wire end portion is received through the inner sleeve for crimped termination to the wire barrel, the application of crimping forces being selectively transmitted through said outer sleeve to said wire barrel without damaging said inner sleeve. Heat is applied to cause the outer sleeve to shrink radially in tightly encircling relationship over the crimped connection to result in a low profile termination. The inner sleeve is heat pliable for radial relaxation upon the application of radial compression forces supplied by the shrinking of said outer sleeve. The inner sleeve is thereby radially collapsed into gripping compression on the insulation of said conductor wire to provide a seal at the end of the outer sleeve and to provide a mechanical support for the conductor wire adjacent to the crimped termination, which support limits and distributes strain on the crimped termination caused by external bending forces applied to the conductor wire. The radial shrinkage of the outer sleeve provides compression forces sufficiently high to displace the inner sleeve to a slightly protruding position from the end of the outer sleeve. The inner sleeve thus provides a seal for the end of the outer sleeve and radially compresses into encircling sealing engagement over the conductor wire insulation, thereby forming a strain relief and mechanical support for the conductor wire.

3,708,612
ELECTRICAL BUSHING ASSEMBLY

James B. Saxon, and Jackie J. Dunn, Sr., both of Birmingham, Ala., assignors to Anderson Electric Corporation, Leeds, Ala.

Filed July 2, 1971, Ser. No. 159,131
Int. Cl. H01b *17/26*
U.S. Cl. 174—142 **5 Claims**



The assembly is designed to be received in a circular opening in a wall of a casing for electrical apparatus, and comprises an elongated generally cylindrical bushing of insulating material molded about a cylindrical central portion of an elongated conductor with internal sealing and locking means therebetween. The bushing assembly seats in an annular recess formed by a stepped boss surrounding the opening, and the assembly is removably held in position by a snap-ring which also maintains sealing pressure on an O-ring positioned between the bushing and the inner wall of the boss. Peripherally-spaced projections on the bushing are received in respective complementary recesses formed in the inner wall of the boss to prevent rotary motion of the assembly with respect to the casing.

ERRATUM

For Class 174—60 see:
Patent No. 3,708,628

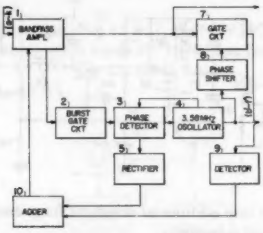
3,708,613
COLOR TELEVISION RECEIVER

Ryuhei Nakabe, Hirakata; Seiji Fujisawa, Abeno-ku, Osaka; Yasuhiro Sugihara, Kitakawachi-gun, Osaka, and Norio Meki, Neyagawa, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Oct. 9, 1970, Ser. No. 79,484
Claims priority, application Japan, Oct. 15, 1969, 44/82835
Int. Cl. H04n *9/12*
U.S. Cl. 178—5.4 HE **8 Claims**

A color television receiver which receives color signals including a carrier chrominance signal; wherein a portion with a

specified phase angle and phase width is picked up from said carrier chrominance signal and the amplitude of said portion



of the carrier chrominance signal is utilized to automatically control the color saturation level, thereby producing a more natural color image.

3,708,614

COLOR TELEVISION RECEIVER

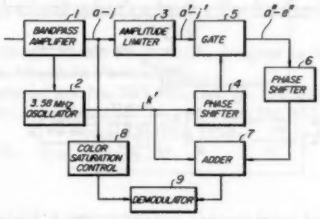
Ryuhei Nakabe, Hirakata-shi, and Fujisawa Hirakata, Osaka, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kodoma-shi, Osaka, Japan

Filed Oct. 9, 1970, Ser. No. 79,485

Claims priority, application Japan, Oct. 15, 1969, 44/82830

Int. Cl. H04n *9/12*

U.S. Cl. 178—5.4 HE **8 Claims**



In a television receiver which receives color television signals including carrier chrominance signals, the passage of the carrier chrominance signals is controlled by means of a continuous subcarrier phase-shifted in a specified phase angle, the resulting signal is added to the subcarrier to partially phase-shift the subcarrier, and the signal thus obtained is used to demodulate the carrier chrominance signal, thereby to ensure the reproduction of a color signal corresponding to a specified hue.

3,708,615

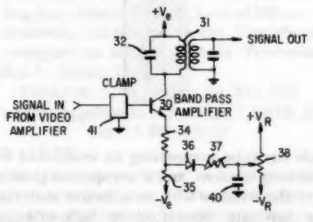
GAMMA CORRECTION BANDPASS AMPLIFIER CIRCUITS

James Hugh Wharton, Indianapolis, Ind., assignor to RCA Corporation

Filed Feb. 8, 1971, Ser. No. 113,560

Int. Cl. H04n *9/06*

U.S. Cl. 178—5.4 ST **6 Claims**



An amplifier circuit for use in a one tube color camera has a gain which is determined by the magnitude of an illumination pedestal accompanying a carrier frequency representative of a particular color. The gain as controlled is used to compensate for gamma coefficient distortion provided by an image pickup device utilized in said camera.

3,708,616

COLOR TV REPRODUCTION UNIT USING LASER BEAMS

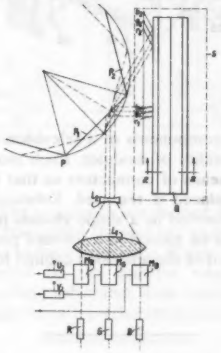
Richard Von Felgel, Farnholz, Germany, assignor to Fernseh GmbH, Darmstadt am Alten Bahnhof, Germany

Filed Nov. 2, 1970, Ser. No. 86,067

Claims priority, application Germany, Nov. 7, 1969, P 19 56 080.6

Int. Cl. H04n *9/14*

U.S. Cl. 178—5.4 R **3 Claims**



A color television system using modulation and mechanical deflection to project several different monochromatic light beams onto a screen to form picture dots in a raster. Delay line systems is used to control modulation to correct for color errors and geometric distortion.

3,708,617

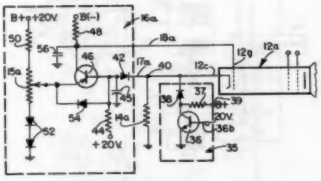
BEAM CURRENT CONTROL CIRCUIT FOR A VIDEO CAMERA SYSTEM

Jerome R. Caraba, and Jude P. Schmidt, both of Chicago, Ill., assignors to Motorola, Inc., Franklin Park, Ill.

Filed May 24, 1971, Ser. No. 146,272

Int. Cl. H04n *5/34*

U.S. Cl. 178—7.2 **7 Claims**



A control circuit for a video camera system is used in conjunction with a vidicon tube to maintain constant intensity of the electron beam within such tube. The vidicon utilizes a resistor connected in series with the cathode thereof, and a voltage is developed across this cathode resistor which has a value indicative of beam intensity. This voltage is delivered to the input of a regulator circuit which has an adjustable reference potential selectively adjustable to set the level of electron emission from the cathode of the vidicon. Control of electron beam intensity is accomplished by connecting an output of the regulator circuit to the control grid of the vidicon. The adjustable reference potential is then compared with the voltage across the cathode resistor to regulate the intensity of the electron beam within the vidicon at the preset constant value.

3,708,618

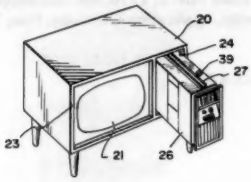
MODULAR TELEVISION RECEIVER

Richard J. Hofmeister, Arlington Heights; Thomas R. Steele, Lombard, and Frederick J. Goetz, Arlington Heights, all of Ill., assignors to Motorola, Inc., Franklin Park, Ill.

Continuation of Ser. No. 730,511, May 20, 1968, abandoned. This application Jan. 22, 1971, Ser. No. 109,023

Int. Cl. H04n *5/64*

U.S. Cl. 178—7.9 **5 Claims**



The electrical components of a television receiver are assembled in a plurality of modules. Each module is coupled into the set by means of connectors so that it may be easily removed and replaced if required. Substantially all of the modules are assembled in a single chassis in the form of a drawer which can be moved to a forward position extending outside of the front of the television cabinet for easy access to each module.

3,708,619

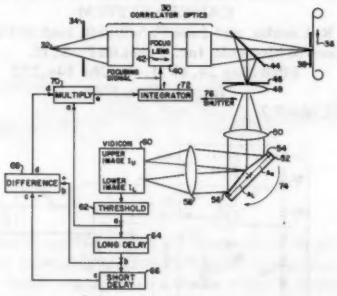
AUTOMATIC FOCUSING OF OPTICAL SYSTEMS

Gregory L. Martin, Phoenix, Ariz., assignor to Goodyear Aerospace Corporation, Akron, Ohio

Filed Oct. 15, 1970, Ser. No. 80,869

Int. Cl. G03b *3/00*

U.S. Cl. 178—7.92 **7 Claims**



Disclosed is a means to automatically focus an optical system. An error signal derived by sensing the image parallax with respect to an output focal plane is employed to focus the optical system by shifting an appropriate optical element so that the image parallax error is minimized.

3,708,620

BANDPASS AMPLIFIER

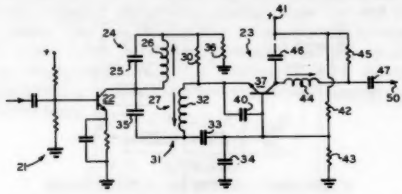
Karol Siwko, Batavia, N.Y., assignor to GTE Sylvania Incorporated

Filed Dec. 7, 1970, Ser. No. 95,484

Int. Cl. H04n *5/14*

U.S. Cl. 178—7.3 R **5 Claims**

A bandpass amplifier having a double tuned resonant circuit is shown. The double tuned circuit has a parallel resonant circuit connected in series with a series resonant circuit which



provides at least one additional resonant frequency utilized to provide additional selectivity.

3,708,621

VERTICAL SYNCHRONIZING SYSTEM

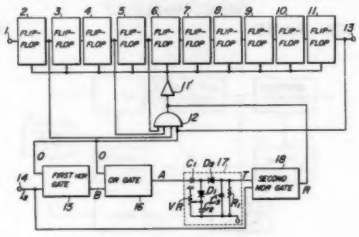
Keisuke Yamamoto, Hirakata, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Kadoma-shi, Osaka, Japan

Filed Feb. 3, 1971, Ser. No. 112,290

Claims priority, application Japan, Feb. 13, 1970, 45/12713; Feb. 13, 1970, 45/12714; Feb. 13, 1970, 45/12715

Int. Cl. H04n *5/06*

U.S. Cl. 178—69.5 TV **6 Claims**



A vertical synchronizing system, in which a trigger signal produced by frequency doubling the horizontal sync signal and frequency dividing the resultant signal by 525 is compared with the vertical sync signal to bring the trigger signal into sync with the vertical sync signal.

3,708,622

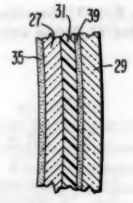
CATHODE-RAY TUBE WITH LAMINATED SAFETY PANEL AND SEPARATE LIGHT-ATTENUATING LAYER

Malcolm George Brown, Jr., Lancaster; Gilbert James Guille, Jr., Dalton, and George Ernest Long, III, Lititz, all of Pa., assignors to RCA Corporation

Filed Sept. 27, 1971, Ser. No. 184,094

Int. Cl. G02b *5/22*; **H01j** *29/06, 29/22*

U.S. Cl. 178—7.82 **10 Claims**

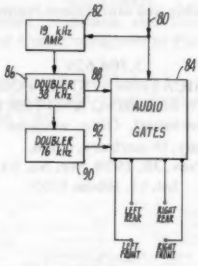


A cathode-ray tube comprising an evacuated envelope including a viewing window, and a transparent glass safety panel laminated to the window with an adhesive material. The tube includes a separate nonreflective light-attenuating layer between the adhesive material and at least one of the window and the panel.

3,708,623
COMPATIBLE FOUR CHANNEL FM SYSTEM

Louis Dorren, Millbrae, Calif., assignor to Quadracast Systems, Inc.

Continuation of Ser. No. 13,902, Feb. 25, 1970, abandoned.
This application April 29, 1970, Ser. No. 32,989
Int. Cl. H04h 5/00
U.S. Cl. 179—15 BT 5 Claims

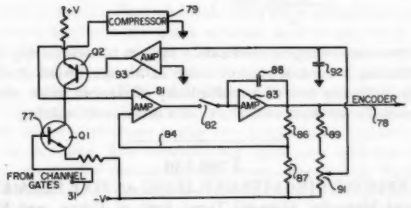


A four channel FM system is described. In one embodiment the usual 19 kHz pilot signal is employed to switch between front and rear information, while in another, a 76 kHz switching signal is employed for this purpose.

3,708,624
PULSE CODE MODULATION COMMUNICATION SYSTEM

Frank S. Boxall, Menlo Park, Calif., assignor to Vicom Corporation, Mountain View, Calif.

Continuation of Ser. No. 503,395, Oct. 23, 1965, abandoned.
This application April 24, 1969, Ser. No. 853,990
Int. Cl. H04j 3/04
U.S. Cl. 179—15 A 10 Claims



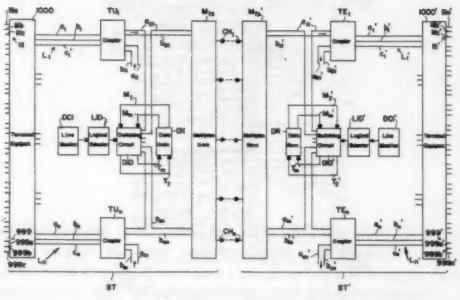
A multi-channel pulse code modulation system in which the amplitude of a waveform is sampled, compressed and allowed to settle and thereafter the compressed sample is sampled and held and thereafter encoded.

3,708,625
CIRCUIT ARRANGEMENT FOR UTILIZING IDLE CHANNELS OF MULTIPLEX TELECOMMUNICATION SYSTEM FOR DATA TRANSMISSION

Emanuele Angeleri; Mario Bonatti, both of Milan; Gianmario Costa, Cornaredo, and Isidoro Poretti, Castiglione-Olona, all of Italy, assignors to Societa Italiana Telecommunicazioni Siemens S.p.A., Milan, Italy

Filed Feb. 1, 1971, Ser. No. 111,441
Claims priority, application Italy, Feb. 3, 1970, 20149 A/70
Int. Cl. H04j 5/00
U.S. Cl. 179—15 BY 9 Claims

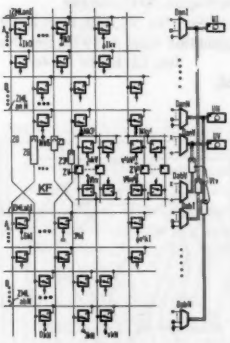
A multiplex telephone system with *n* signal channels interconnecting two terminals has a data transmitter at one terminal and a data receiver at the other terminal, these two data-processing units being connectable to each other by way of any channel not engaged in voice communication. A line monitor at each terminal determines the number of idle incoming and outgoing lines, respectively, and controls an associated logical selector to allocate one or more disengaged channels to data transmission, according to the number of idle lines, with the aid of a switching circuit connecting such channel directly to the data-transmitter output and the data-receiver input. The *n* channels are divided into *m* groups, not more than one disengaged channel per group being allocable at any given time to the transmission of data; such allocation is promptly canceled by the selector whenever additional requests from calling subscriber lines reduce the number of available channels below a predetermined minimum.



3,708,626
SWITCHING CENTER FOR PCM- TIME MULTIPLEX TELEPHONE NETWORK

Karl Anton Lutz, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed Oct. 27, 1970, Ser. No. 84,337
Claims priority, application Germany, Oct. 27, 1969, P 19 54 043.3
Int. Cl. H04f 3/00
U.S. Cl. 179—18 J 6 Claims



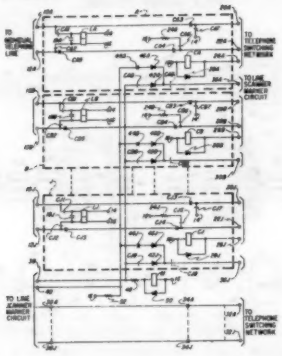
A time division communication system which provides means for connecting the information in a pulse frame on an incoming telephone line to the next free time channel in a pulse frame on an outgoing line. A quasi-isosynchronous operation within the switching network provides the necessary storage capacity and delay means to effect the information transfer.

3,708,627

PLUG-IN LINE CIRCUIT ARRANGEMENT

Otto Altenburger, Rochester, N.Y., assignor to Stromberg-Carlson Corporation, Rochester, N.Y.

Filed June 15, 1971, Ser. No. 153,233
Int. Cl. H04m *3/22*
U.S. Cl. 179—18 F **6 Claims**



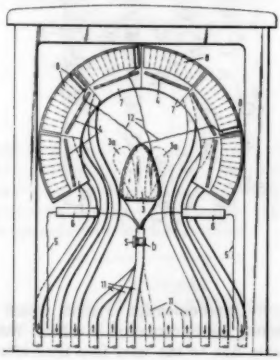
A plurality of telephone line circuits comprising a single group are mounted on a printed circuit board. The line circuits include common terminals and individual terminals for connecting individual telephone lines to a telephone switching network and for connecting the line circuits to a line scanner-marker circuit for identifying originating and terminating calls, first within a particular group (corresponding to a single circuit board) and second, the specific line circuit within the group associated with the call. The marking process for establishing a circuit path through the switching network is made on an individual line circuit basis, each telephone call being processed sequentially wherein the mark contacts for all line circuits on a given circuit board are actuated simultaneously by a common mark relay associated with the board.

3,708,628

CONNECTION SYSTEMS

Hendrik Adrianus Hendriks, Haugue, Netherlands, assignor to De Staat Der Nederlanden, Ten Deze Vertegenwoordigd Door De Directeur-General Der Posterijen, Telegrafie En Telefonie, The Hague, Netherlands

Continuation of Ser. No. 94,239, Dec. 1, 1970, abandoned.
This application Aug. 3, 1971, Ser. No. 168,604
Int. Cl. H01r *13/46*
U.S. Cl. 174—60 **9 Claims**



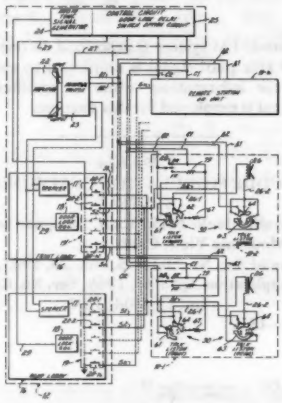
A connection box, wherein any one of a large number of first leads can be connected with any one of a large number of second leads. The box is provided with contact devices disposed in an arc of a circle, one or more guide bodies disposed adjacent the center of the circle, and bridges interposed between the guide bodies and the contact devices. The first leads can be directly connected to the contact devices, and the second leads can be passed over the guide bodies and the bridges to the contact devices to be connected thereto, so that the second leads may be of equal length, may directly constitute part of the cables to be introduced, and may be arranged in an accessible and convenient manner.

3,708,629

INTERCOMMUNICATION SYSTEM FOR APARTMENT, OFFICE BUILDING AND THE LIKE

Philip E. First, Cincinnati, Ohio, assignor to Scovill Manufacturing Company, Waterbury, Conn.

Filed Nov. 30, 1970, Ser. No. 93,524
Int. Cl. H04m *9/00*
U.S. Cl. 179—37 **4 Claims**



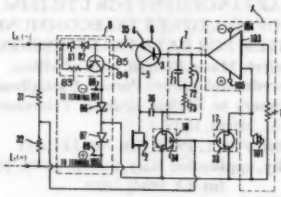
A two-way intercommunication system for selectively interconnecting a central station, such as an apartment or office lobby, with any one of a multiplicity of remote units, such as individual apartments or offices of a multi-unit building.

3,708,630

TELEPHONE CIRCUITS UTILIZING ACTIVE ELEMENTS

Ryoichi Matsuda; Masaaki Terai, both of Tokyo, and Yasuo Hojyo, Sayama, all of Japan, assignors to Nippon Telegraph and Telephone Public Corporation, Tokyo, Japan

Filed Feb. 4, 1971, Ser. No. 112,663
Claims priority, application Japan, Feb. 7, 1970, 45/10509
Int. Cl. H04m *1/58*
U.S. Cl. 179—81 A **12 Claims**



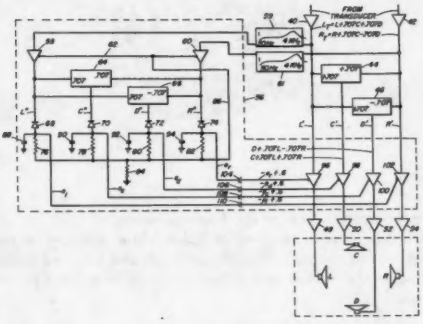
The telephone circuit comprises transmitting means, receiving means, a balancing network, a transistor circuit connected between the transmitting means, receiving means and telephone lines, a D.C. supply circuit for applying a constant

voltage to the transmitting means from the telephone circuit and variable impedance elements respectively connected across the transmitting means and the receiving means, the variable impedance elements varying their impedance according to the D.C. condition at line terminals.

3,708,631
QUADRAPHONIC REPRODUCING SYSTEM WITH GAIN CONTROL

Benjamin B. Bauer, Stamford, and Daniel W. Gravereaux, Wilton, both of Conn., assignors to Columbia Broadcasting System, Inc.

Filed June 8, 1970, Ser. No. 44,196
Int. Cl. G11b *3/74*; **H04h** *5/00*; **H03g** *3/24*
U.S. Cl. 179—100.1 TD **17 Claims**



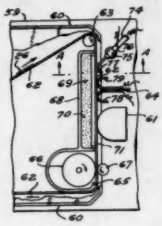
Method and apparatus for reproducing information recorded or transmitted as four separate channels on a medium having only two independent tracks and presenting it on four loudspeakers so as to give the listener the illusion of sound coming from a corresponding number of separate sources of sound. The two tracks may be provided by any one of several available two-track systems, such as two-track tape, the stereomultiplex system of broadcasting, or a stereophonic disc record, on which two of the four channels are applied as usual, with the third and fourth channels superimposed thereon by respectively applying equal portions of them in-phase and out-of-phase to the two tracks in accordance with known practice. The reproducing apparatus includes transducer means for recovering the composite signals from the two tracks, circuit means for deriving the four channels by appropriately adding and subtracting components of the composite signals, four separate loudspeakers, and control circuitry which recognizes the channel or channels having the dominant signal and which controls the instantaneous amplitudes of signals delivered to the four loudspeakers in a manner to give a substantially perfect illusion of four separate independent sources of sound.

3,708,632
ELECTRONIC SOUND EFFECTS APPARATUS WITH TAPE CARTRIDGE AND RESILIENTLY MOUNTED SWITCHING PLATE

Arthur R. Parilla, Mountain Lakes, N.J.

Division of Ser. No. 750,030, Aug. 5, 1968, Pat. No. 3,644,682.
This application Feb. 17, 1972, Ser. No. 227,247
Int. Cl. G11b *23/04, 23/32, 15/18*
U.S. Cl. 179—100.1 C **2 Claims**

An electronic sound effects, or talking clock, apparatus for indicating the passage of the hour and for also announcing the hour by reproduction of the human voice, the apparatus having a clock, a timer and a tape-player including a loudspeaker, which timer produces periodic signals at selected time intervals to start the tape-player, the tape being pre-programmed to announce the time sequentially by reproduction of the human voice through the loudspeaker and being synchronized with the actual local standard time so as to repeat itself with appropriate time announcements throughout the desired operating cycle. Displacement of the tape itself through the tape-player is used to stop the tape-player at the end of each

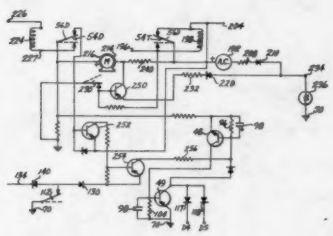


announcement and before the next announcement is due to start, so that the time announcement will always remain in phase with the local standard time indefinitely. If desired, the tape-player may be concurrently used for entertainment, or other purposes, instead of as a talking clock, at the choice of the owner.

3,708,633
UNIDIRECTIONAL TAPE MOTION DETECTION APPARATUS AND AUTOMATIC TAPE RETURN

William M. Nye, Bellevue, and Stanley W. Jones, Seattle, both of Wash., assignors to Lanier Electronic Laboratory, Inc., Atlanta, Ga.

Filed Sept. 26, 1969, Ser. No. 861,242
Int. Cl. G11b *15/10, 15/20, 27/20*
U.S. Cl. 179—100.2 R **9 Claims**



In dictation systems in which magnetic tape is stored in bins, unidirectional tape motion switches and related control and monitor circuits are provided to automatically return previously reversed but unlistened tape to the place where the dictation was terminated. Also provided are unidirectional switches and circuitry to determine the accumulative length of tape transcribed and/or dictated and awaiting transcription.

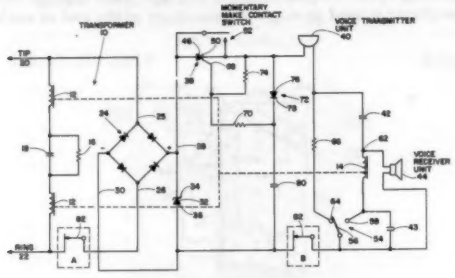
3,708,634
TELEPHONE HAND TEST SET

Martinus Pieter Richard Vantill; Graham Stirling Laing, and Donald Mack Lounsbury, all of Ontario, Canada, assignors to Northern Electric Company Limited, Montreal, Quebec, Canada

Filed Nov. 9, 1971, Ser. No. 196,993
Int. Cl. H04m *1/24*
U.S. Cl. 179—175 **14 Claims**

A telephone test set or hand test set which automatically returns to a relatively high impedance monitor mode when disconnected from a telephone line. After finding an idle telephone line with the hand test set in the monitor mode, a

relatively low impedance talking circuit is shunted across the telephone line by manually gating and firing a controlled rectifier. When the hand test set is disconnected, on completion of the call, the controlled rectifier ceases conducting and effectively disconnects the talking circuit.

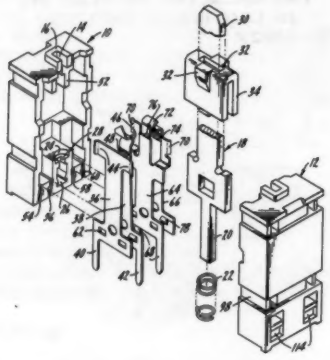


3,708,635

MULTIPLE SWITCH ASSEMBLY WITH IMPROVED RECIPROCATING LEAF SPRING CONTACT CAM ACTUATOR

Colman Cosley, Streamwood, and Wilhelm A. Streuer, Mount Prospect, both of Ill., assignors to Oak Electro/Netics Corp., Crystal Lake, Ill.

Filed June 17, 1971, Ser. No. 154,031
Int. Cl. H01h *3/02, 13/52*
U.S. Cl. 200—5 R **17 Claims**



A pushbutton switch of the type in which a moving plunger is effective to open and close terminal contact springs. The terminal contact springs within the switch housing are biased in such a way that when in the closed position, the contacts are firmly held together preventing momentary separation. The switches may be mounted in a group by spring clips or the like, either integral with a mounting plate or as a separate part used therewith.

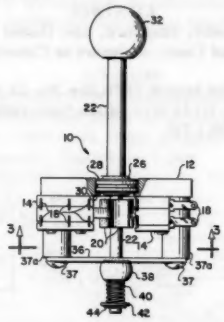
3,708,636

MICROSWITCH UNIVERSALLY PIVOTED HANDLE ASSEMBLY WITH IMPROVED X-Y DIRECTIONAL PROGRAMMING PLATE

Frank L. Sobchak, Chicago, Ill., assignor to Stewart-Warner Corporation, Chicago, Ill.

Filed June 28, 1971, Ser. No. 157,491
Int. Cl. H01h *25/04*
U.S. Cl. 200—6 A **1 Claim**

The following specification describes a multi-position switch control assembly in which a rod is mounted for universal pivoting movement, with the movement being guided by a guide plate, to operate any one of a plurality of switches selected in correspondence with the pivot direction. An axially movable detent carried by the rod is spring biased for engagement with either a central opening or recess in the guide plate when the rod is in the home position to hold the rod in that position, or with another guide plate opening or recess when the rod is operated to hold the rod and selected switch in an operated position until a positive force is applied to return the rod.

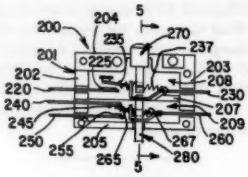


3,708,637

FLOAT ACTUATED SEQUENCE SWITCH WITH PUSHBUTTON ACTUATOR

Harvey R. Krueger, 133 Mora Road, Carpentersville, Ill.; Donald S. Reynolds, deceased, late of Glencoe, Ill., and by John T. Durkin, executor, c/o The First National Bank of Chicago, Chicago, Ill.

Division of Ser. No. 801,896, Dec. 23, 1968, which is a division of Ser. No. 668,419, Sept. 18, 1967, Pat. No. 3,441,176. This application Nov. 5, 1970, Ser. No. 87,192
Int. Cl. H01h *5/08, 35/18*
U.S. Cl. 200—67 B **4 Claims**



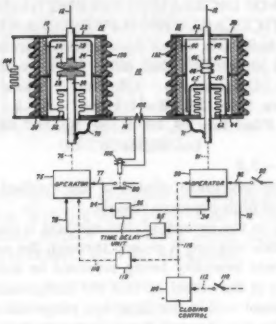
A switch has first and second fixed contacts and first and second movable contacts for respectively engaging the fixed contacts. A first actuator moves the movable contact between a first position engaging the associated fixed contact and a second position disengaging that contact. A second actuator moves the second movable contact between a first position engaging the associated fixed contact and a second position disengaging that contact. The second actuator is normally spaced from the first actuator so as to be unaffected during movement of the first actuator between the first and second positions thereof. The first actuator is movable to a third position to engage the second actuator for movement thereof from one of its positions to the other of its positions.

3,708,638

VACUUM TYPE ELECTRIC CIRCUIT BREAKER

Graham R. Mitchell, Willingboro, N.J., assignor to General Electric Company

Filed Dec. 14, 1970, Ser. No. 97,835
Int. Cl. H01h 33/66
U.S. Cl. 200—144 B 6 Claims



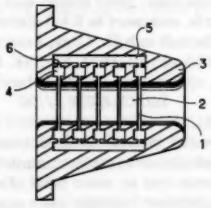
Discloses a high voltage circuit breaker that comprises a main circuit interrupter of the vacuum-type, a voltage-controlling resistor shunting the main interrupter, and an auxiliary interrupter connected in series with parallel combination of the main interrupter and the resistor. During fault-current interruptions the main interrupter is opened first and the auxiliary interrupter thereafter. During capacitance-current interruptions the auxiliary interrupter is opened first and the main interrupter thereafter. The latter sequence enables the auxiliary interrupter to assume the capacitance-current interrupting duty and to relieve the main vacuum-type interrupter therefrom.

3,708,639

PRESSURE FLUID EXTINGUISHING DEVICE FOR A CIRCUIT BREAKER

Jacques Vigreux, Lyon, and Bernard Trolliet, Villeurbanne, both of France, assignors to Delle-Alsthom, Villeurbanne, France

Filed Jan. 14, 1971, Ser. No. 106,422
Claims priority, application France, Jan. 6, 1970, 7001607
Int. Cl. H01h 33/54
U.S. Cl. 200—148 R 10 Claims



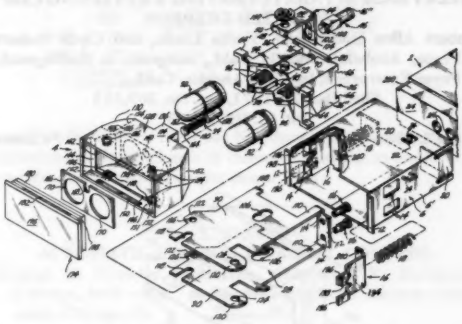
An extinction device for a pressurized gas cut-off appliance has holes, in its side walls, through which a lateral auxiliary flow of sulphur hexafluoride is made to pass.

3,708,640

FRONT-MOUNTED, CLAMP-TO-HOLD ELECTRICAL CARTRIDGE WITH SWING-ASIDE, PUSH-TO-TEST CAP THEREON

Maurice D. Fuller, Mercer Island, Wash., assignor to Korry Manufacturing Company, Seattle, Wash.

Filed July 26, 1971, Ser. No. 166,216
Int. Cl. H01h 9/18
U.S. Cl. 200—167 A 41 Claims



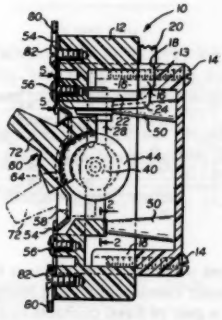
The cartridge is outwardly flanged to abut the rim of an opening in a panel when it is front-loaded in the opening, and has a pair of spring-loaded clamping thumbs contained therein, which are released through a side opening in the cartridge to engage the inverse side of the panel for purposes of clamping the cartridge to the rim. In addition, the cartridge has a cap at the open end thereof, which is shuttle mounted to be reciprocated in relation to the cartridge, for push-to-test operation of an electrical device therebehind, but which is also rotatable about a fixed axis of the shuttle, transverse the longitudinal axis of the cartridge, to be swung aside for access to the clamping thumbs, and/or for other purposes, such as relamping an illuminated legend thereon.

3,708,641

ELECTRICAL SWITCH FOR PREFABRICATED WIRING HARNESSES

Solomon Rubinstein, 80 Shady Lane, Fanwood, N.J.

Filed April 12, 1971, Ser. No. 133,254
Int. Cl. H01h 9/02
U.S. Cl. 200—168 E 14 Claims



An electric switch adapted particularly for factory built housing that use harnesses for the electrical wiring. The switch fits directly into the wall of a building without requiring a box. Switch terminals are removable from the switch housing through the back of the housing and can be permanently connected with conductors of power cables before being inserted

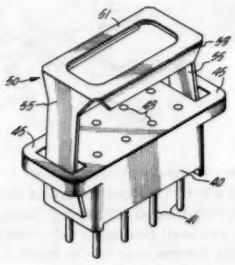
into the switch. A rearward portion of the switch housing is connected to a forward portion by detachable fastening means to hold the terminals in the housing and to clamp the cable to the housing. The preferred construction has terminals with barrels into which the conductors of a power cable extend, and the cable enters the switch housing and terminates in the barrels with only 90° bends of the conductors of the cable.

3,708,642

RELAY BASE APPARATUS HAVING A RETAINING CLIP MOUNTED THEREON

Robert Allen Hollingsead, Yorba Linda, and Clyde Robert Pryor, Anaheim, both of Calif., assignors to Hollingsead-Pryor Enterprises, Inc., Los Angeles, Calif.

Filed Dec. 20, 1971, Ser. No. 209,513
Int. Cl. H01h *9/08*
U.S. Cl. 200—168 C **7 Claims**



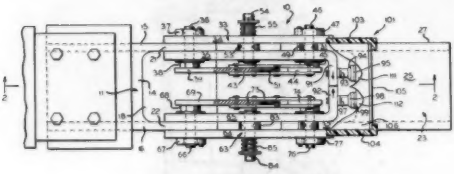
A relay base apparatus having means for receiving outwardly flexible legs of a retaining clip. The retaining clip comprises a top wall adapted to extend over the relay and a pair of legs extending downwardly from opposite sides of the wall to retain the relay therebetween. The lower extremities of the legs are outwardly flexible and are adapted to engage clip receiving means located on the base to form an integral unit therewith.

3,708,643

HIGH-CURRENT SWITCH WITH CONTACT PRESSURE BOOSTER

John W. Erickson, Crystal Lake, Ill., assignor to Erickson Electrical Equipment Co., Chicago, Ill.

Filed Nov. 22, 1971, Ser. No. 200,713
Int. Cl. H01h *1/50*
U.S. Cl. 200—170 A **4 Claims**



A high-current switch comprising two fixed terminals of rectangular tubular construction each having its top wall cut away to afford a pair of fixed contacts at each terminal, and two dual-blade movable contact members, each pivotally mounted on one fixed contact of the first terminal and conjointly pivotally movable into pressure contact with the opposed sides of a fixed contact of the second terminal. The free ends of the two inner contact blades project inwardly into close proximity with each other to function as a unitary structure and to preclude distortion of the blades when the switch is opened under overload or closed under fault conditions; the inward extensions of the inner blades carry arcing contacts aligned with fixed arcing contacts on the second fixed terminal. A single arc chute may be mounted on the outer walls of the second fixed terminal, encompassing the paths of the free ends of all of the contact blades in the region just above the second fixed terminal.

3,708,644

METHOD OF INCREASING STRENGTH OF VESSELS, PARTICULARLY HIGH-PRESSURE VESSELS

Evgeny Mikhailovich, ulitsa Akademika Kurchatova, 5a, kv. 27; Marat Moiseevich Shel, ulitsa Gorkogo, 27, kv. 28, and Vladimir Grigorievich Likuchev, ulitsa Akademika Kurchatova, 9, kv. 25, all of Irkutsk, U.S.S.R.

Filed July 29, 1971, Ser. No. 167,488
Int. Cl. H05b *5/00*
U.S. Cl. 219—7.5 **4 Claims**

The present invention relates to the method of increasing the strength of high-pressure vessels.

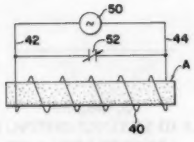
According to the invention, the method is characterized in that the electric current is passed through the wall of the vessel, the current intensity being selected to suit the internal fluid pressure in the vessel, so that the compression forces acting on the vessel wall in the direction perpendicular to that of the current flowing through the wall counterbalance the internal fluid pressure in the vessel.

3,708,645

METHOD OF HEATING A WORKPIECE OF PARTICULATE MATERIAL

Harry B. Osborn, Jr., Pepper Pike, Ohio, assignor to Park-Ohio Industries, Inc., Cleveland, Ohio

Filed Oct. 12, 1971, Ser. No. 188,018
Int. Cl. H05b *9/00*
U.S. Cl. 219—10.41 **2 Claims**



A workpiece formed from compacted, electrically conductive particles is heated by first passing a high-frequency current through the workpiece and then by inductively heating the workpiece.

3,708,646

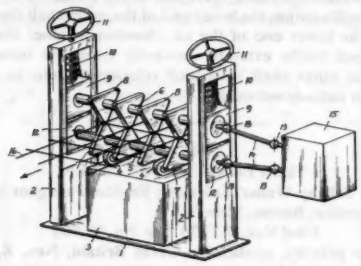
ELECTRIC RESISTANCE WELDING MACHINE

Klaus Ritter; Hans Gott; Josef Ritter, and Gerhard Ritter, all of Graz, Austria, assignors to EVG Entwicklungs- und Verwertungsgesellschaft m.b.H., Graz, Austria

Filed March 22, 1971, Ser. No. 126,561
Claims priority, application Austria, March 25, 1970, 2799/70
Int. Cl. B23k *11/00*
U.S. Cl. 219—56 **8 Claims**

A machine for the intermittent electric resistance welding of a workpiece which advances continuously during the welding process between one or more pairs of welding electrodes. Of the two electrodes forming each pair at least one is mounted on a drive shaft extending parallel to the surface of an advancing workpiece perpendicular to its direction of advance. This electrode has two or more electric contact surfaces for application to the workpiece spaced apart equiangularly around the periphery of the electrode. The drive shaft is

driven through a gear system which gives the drive shaft a complex rotational movement whereby each working contact surface of the electrode follows the trochoidal path including



a substantially straight part alongside the path of advancement of the workpiece. Welding takes place at each contact surface while the contact surface is moving along this part of its trochoidal path in contact with the workpiece.

3,708,647

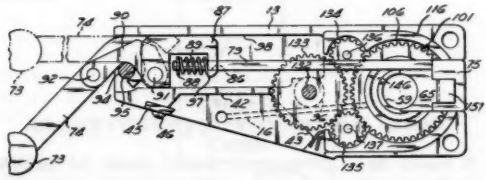
WELDING HEAD DRIVE UNIT

Richard C. Acker, Chagrin Falls, Ohio, assignor to The Weatherhead Company, Cleveland, Ohio

Filed March 24, 1971, Ser. No. 127,612

Int. Cl. B23k 9/02

U.S. Cl. 219—60 A **5 Claims**



An in-place inert gas tube welder is disclosed which includes a head portion and a handle portion. The head portion includes a clamping means having an overcenter toggle for clamping the tubes to be welded. A sectored ring carries a nonconsumable tungsten electrode along a path adjacent the junction of the tubes to be welded. Inert gas is supplied to the welding chamber around the full 360° of the joint. A one-way clutch permits manual rotation of the sectored ring. The handle portion includes a drive motor for rotating the sectored ring, a means for supplying inert gas to the welding chamber, and a means for supplying electrical power to the electrode. An attachment means releasably secures the handle portion to the head portion. A supply cable is releasably connected to the handle portion for releasably connecting an inert gas source to the means for supplying inert gas to the welding chamber and for releasably connecting an electrical power source to the means for supplying electrical power to the electrode.

3,708,648

MULTI-MODE STRUCTURAL SPOTWELD MONITOR

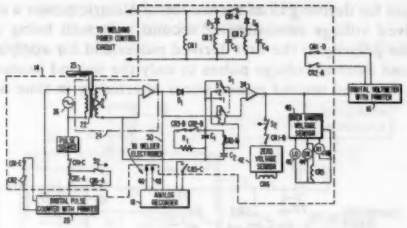
William C. Croucher, Englewood, and Russell A. Chihoski, Littleton, both of Colo., assignors to Martin Marietta Corporation, New York, N.Y.

Filed June 18, 1971, Ser. No. 154,379

Int. Cl. B23k 9/10

U.S. Cl. 219—109 **7 Claims**

Disclosed herein is a multi-mode spotweld monitor which selectively monitors one or more of a plurality of different weld quality indicators. Provision is made for the recording of the indicators in both analog and digital form to provide readily usable data for weld quality determinations. Further, the



multi-mode monitor need not be adjusted to compensate for variations in the thickness of different workpieces and/or for variations in electrode lengths due to wear.

3,708,649

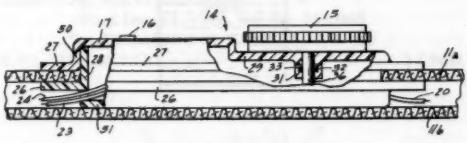
AUTOMATIC BLANKET INTEGRAL CONTROL

George C. Crowley, Winnetka, and Allen V. Berenson, Chicago, both of Ill., assignors to Northern Electric Company, Chicago, Ill.

Filed March 22, 1971, Ser. No. 126,464

Int. Cl. H05b 1/00

U.S. Cl. 219—212 **4 Claims**



A control for an electrical appliance such as an electric blanket which is integrally formed with the blanket such that the temperature of the blanket may be controlled by the user without using conventional controls requiring electrical leads extending from the blanket to a control placed on a night stand. The control of the present invention is small and of light weight and does not interfere with the comfort of the user and is always handy for adjustment by the user. The control has waterproof seals so that the blanket may be washed or dry-cleaned without damaging the control and in a modified form the control is detachable connected to the blanket so that it may be removed for washing or dry-cleaning of the blanket.

3,708,650

ELECTRICAL HEATING APPARATUS

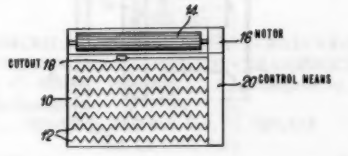
George Horn Smillie, and Frank Johnstone, both of Glasgow, Scotland, assignors to Tronicair International Limited, London, England

Filed Jan. 18, 1971, Ser. No. 106,957

Claims priority, application Great Britain, Jan. 21, 1970, 3,001/70

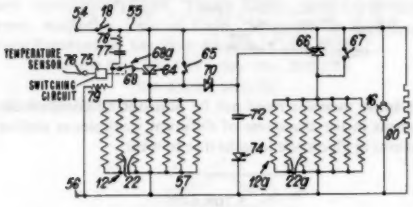
Int. Cl. H05b 1/02, 3/02

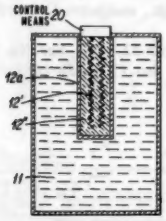
U.S. Cl. 219—364 **18 Claims**



Electrical heating apparatus comprises first and second electric heater means. First means are provided in a control

means for deriving from a source of electric power a first derived voltage consisting of first pulses all of the same polarity and for applying the first derived voltage pulse only to the first heater means. Second means are provided in the control means for deriving from the source of electric power a second derived voltage consisting of second pulses all being of opposite polarity to the first derived pulses and for applying the second derived voltage pulses to only the second heater unit. The first and second pulses occur alternately in time and do





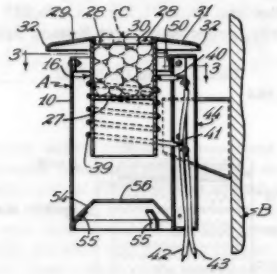
not overlap. The heater units each comprise at least one heating element comprising elongated resistive conductors adapted to dissipate heat and which have a maximum cross-sectional area equal to that of a circular conductor of a diameter not greater than 0.015 inches. The heating apparatus may comprise a forced circulation air heater with the conductors of the first and second heater units exposed to direct contact by the air stream. Alternatively, the apparatus can be used to heat a liquid, in which case the conductors may be embedded in refractory material and immersed in the liquid.

3,708,651

ELECTRIC SAUNA HEATER

John Leo Neville, Cannon Falls, Minn., assignor to Micro Metals, Inc., Red Wing, Minn.

Filed March 12, 1969, Ser. No. 806,362
Int. Cl. A61h *33/06*
U.S. Cl. 219—365 **4 Claims**



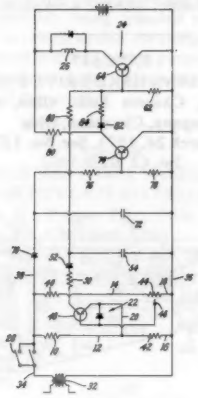
An electric sauna heater includes an outer tubular shell and a concentric inner tubular shell supported in spaced relation. A heating element encircles the inner shell in contact therewith. A partition extends across the inner shell, and the area above the partition forms a receptacle for rocks or other heat retaining elements. An open bottomed air chamber is formed within the inner shell below the partition. A frusto-conical baffle within the lower end of the outer shell directs air toward the lower end of the air chamber in inner sleeve. A ring-shaped baffle extends outwardly from the inner shell above the outer shell in spaced relation thereto to deflect heated air radially outwardly.

3,708,652

TEMPERATURE CONTROLS

Malcolm Salway-Waller, Leicester, England, assignor to USM Corporation, Boston, Mass.

Filed Nov. 4, 1970, Ser. No. 86,907
Claims priority, application Great Britain, Nov. 8, 1969, 54,802/69
Int. Cl. H05b *1/02*
U.S. Cl. 219—505 **3 Claims**



A temperature control for an electrically heated device having an electric heating element themally contacting the device for heating the device. The heating element has a temperature variable electrical property and is connected in one arm of a bridge circuit. The bridge circuit is connected across a source of electric energy to power the heating element. The bridge cross-over current operates means for digitally controlling the electric power supplied to the bridge circuit. A pulsing circuit periodically resets the power supplied to the bridge circuit to a predetermined one of the digital magnitude.

3,708,653

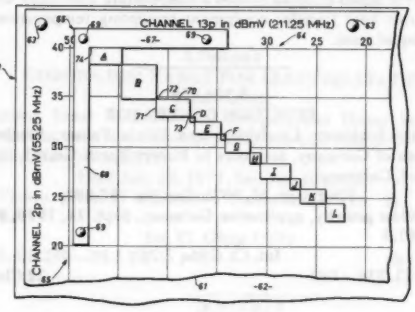
METHOD AND DEVICE FOR THE DESIGN OF TWO PARAMETER DISTRIBUTION SYSTEM

John Cappon, 1 Cathcart Street, Willowdale, Ontario, Canada

Filed June 28, 1971, Ser. No. 157,288
Int. Cl. G06c *3/00*
U.S. Cl. 235—61 B **26 Claims**

A device and method especially suited for use in the design of a cable television signal distribution system includes a chart having mutually perpendicular axes representing the signal intensities at the Channels 2 and 13 picture carrier frequencies respectively. Modules representing individual components of the distribution system are each dimensioned to correspond to the loss of signal strength at each of the two reference frequencies on passage of a signal through the corresponding component. Each module is positioned on the chart with one of its corners at a point on the chart corresponding to the input signal strengths for the particular component. The signal strengths at the output of that component can then be read

from the chart by reference to the position of a second corner of the module on the chart. By the use of L-shaped modules to represent a signal-dividing component and by positioning an outer corner between the legs of the module at a point on the chart corresponding to the input signal strengths for the particular component, an inner corner between the legs of the



module is then positioned on the chart at a point corresponding to the signal strengths at the through-line output of the component while the legs of the module have such lengths that the signal strengths at a branch or tap output of the component can be read from the chart scales for the point of intersection of projections of the end edges of the legs of the module.

3,708,654

READER SYSTEM FOR CONVENTIONAL CREDIT CARDS

William M. Booth, Grand Haven, Mich., and Robert E. Westrick, Muskegon, Mich., assignors to Bennett Pump Incorporated, Muskegon, Mich.

Filed May 26, 1971, Ser. No. 147,098
Int. Cl. G06k *7/06*
U.S. Cl. 235—61.11 A **5 Claims**

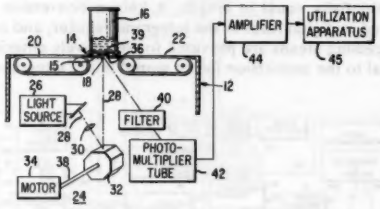
A system for electrically reading the customer account number or other embossed information on a conventional plastic credit card includes a reader means having a plurality of electrical contact matrices, each of which is designed to read any of the figures zero through nine. A metal foil tape is positioned between the reader means and the embossed figures on the credit card, whereby an electrical charge passed through the tape actuates the probes of the various contact matrices, and provides intelligence information to various electrical relay trees (or electric equivalent) for obtaining a complete read-out of the customer's account number. This intelligence information may then be provided to an invoice printer or, alternatively, to an imprinter where the electrical read-out from the imprinter could be fed directly into tape punching apparatus, dataphone, magnetic tape, teletype, or other data processing equipment.

3,708,655

ARTICLE IDENTIFICATION APPARATUS

Joseph Francis Schanne, Cheltenham, Pa., assignor to RCA Corporation

Filed April 30, 1971, Ser. No. 139,103
Int. Cl. G06k *7/10*; **H03k** *3/00*
U.S. Cl. 235—61.11 E **7 Claims**



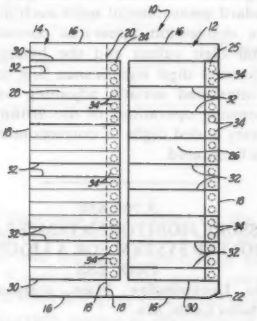
Binary coded designator labels fixed to articles which they identify are scanned and the signals thereby obtained are employed to produce clock pulses. Various circuits are included for checking the accuracy of signals read from a label and for distinguishing them from marks or other data on the article.

3,708,656

TABULATING TYPE BALLOT

James C. Fielder, San Bruno, Calif., assignor to Diamond National Corp., San Francisco, Calif.

Filed Dec. 11, 1968, Ser. No. 783,068
Int. Cl. B42d *15/00*; **G06k** *19/00, 21/00*
U.S. Cl. 235—61.12 R **1 Claim**



A tabulating card type ballot is disclosed which has a tear-off section joined to a tabulating card section with perforations. Areas indicating items to be voted upon are indicated on the tear-off section and in a voting column located in the center region of the card section. Tabulating columns containing voting areas surrounded by perforations are located on each side of the voting column on the card section. These voting areas are positioned opposite areas indicating items to be voted upon on the tear-off section and in the voting column.

3,708,657

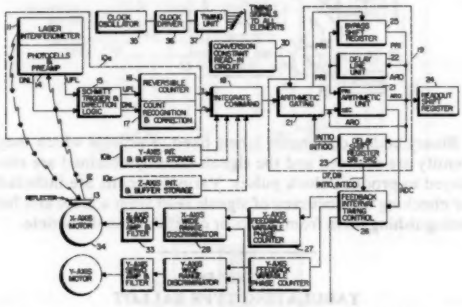
NUMERICAL CONVERSION APPARATUS FOR INTERFEROMETER POSITION TRANSDUCER

Leroy U. C. Kelling, Waynesboro, Va., assignor to General Electric Company

Filed Feb. 29, 1968, Ser. No. 709,433
Int. Cl. G06f *7/52*
U.S. Cl. 235—156 **22 Claims**

A digitally operable, numerically controlled machine is described which employs an interferometer for position feed-

back together with a fringe count conversion apparatus capable of operating in a scale of 1, scale of 10, or scale of 100 to accommodate a wide range of machining speeds. The fringe count conversion apparatus converts an input series of electric signal pulses indicative of a quantity being measured (such as distance) into a digital count of standard measurement units. The apparatus is comprised by a digital integrator having an integrand register, a minor sum remainder register and a major sum remainder register with all of the registers being substantially equal in length. A known conversion factor is stored in digital form in the integrand register, and arithmetic processing means are provided for selectively entering values equal to the conversion factor stored in the integrand register



into one of the remainder registers in response to the input series of electric signal pulses. The arithmetic processing means also serves to transfer overflow values from the minor sum remainder register into the major sum remainder register whereby the value accumulated in the major and minor sum remainder registers is indicative of the quantity being measured in standard measurement units such as inches or centimeters. The conversion apparatus operates with binary coded decimal digit values and the binary digits of corresponding decimal digit significance are time sequentially grouped in interlaced serially adjoining time relationship whereby processing operations of the arithmetic processing means on binary coded digits of corresponding decimal digit significance is facilitated.

3,708,658

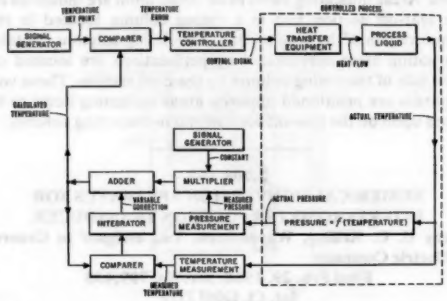
PRESSURE MONITORED TEMPERATURE CONTROLLED SYSTEM FOR A LIQUID-VAPOR PROCESS

Byrd Hopkins, Longmeadow, Mass., assignor to Monsanto Company, Saint Louis, Mo.

Continuation-in-part of Ser. No. 872,777, Oct. 30, 1969, abandoned. This application April 29, 1971, Ser. No. 138,729

Int. Cl. C08f 1/98; G06f 15/46; G06g 7/58

U.S. Cl. 235—151.12 **4 Claims**



A system for dynamically controlling the temperature of the liquid mass in a liquid-vapor phase process at a predetermined value. Pressure and temperature sensors are used to generate signals proportionate to the pressure and temperature within the vessel containing the liquid mass. The pressure signal is combined with a conversion factor to generate a calculated temperature signal. The calculated temperature signal is compared to the temperature sensor signal and the conversion factor is automatically corrected. The calculated temperature signal and a set temperature signal are compared to produce an error signal adapted to feed a temperature controller which controls heat transfer equipment regulating temperature of the liquid mass.

3,708,659

FUNCTION GENERATOR

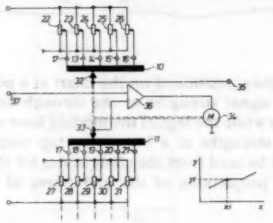
Gunter Schirmer, Leinfelden, and Edwin Fauser, Sersheim, both of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed Sept. 23, 1971, Ser. No. 182,982

Claims priority, application Germany, Sept. 24, 1970, P 20 47 087.5

Int. Cl. G06q 7/26

U.S. Cl. 235—197 **22 Claims**



Approximation of a function relating an independent to a dependent variable. A first resistance furnishes signals corresponding to the independent variable values at a plurality of first taps, a second resistance furnishes dependent variable signals at a corresponding plurality of second taps. A first and second contact arm respectively scan the first and second resistors simultaneously. A feedback circuit has an input terminal connected to the input furnishing the value of independent variable for which the value of dependent variable is to be found. It has a feedback input connected to receive the signals scanned by the first contact arm. Movement of contact arms is stopped when signal at first contact arm is equal to input signal. Signal at second contact arm then equal to desired value of dependent variable.

3,708,660

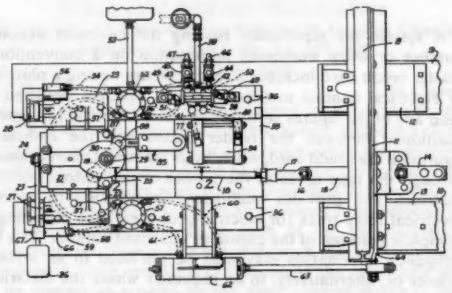
PNEUMATICALLY-OPERATED TOGGLE YARD SWITCH

Wesley Y. Speight, Bellaire, Tex., assignor to Southern Pacific Transportation Company, Houston, Tex.

Filed Aug. 26, 1970, Ser. No. 45,265

Int. Cl. B61l 5/06

U.S. Cl. 246—393 **1 Claim**



A simple, direct, lost-motion linkage connection is provided between the switch operating crank of a conventional toggle-

type yard switch and a double-acting pneumatic cylinder whereby the switch can be thrown manually or by a trailing wheel flange, in the customary manner, and, also, automatically by means of a pneumatic cylinder. The lost-motion connection permits operation of the switch in the usual manner through the switch stand or by means of the pneumatic cylinder without either affecting or interfering with the other.

3,708,661

CORONA DISCHARGE FOR ELECTRO-STATIC CHARGING

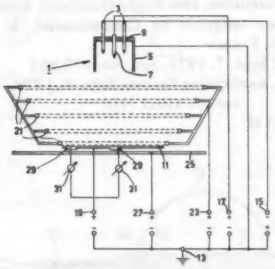
Norbert Ernst Fritz Hansen, Roetgen, and Dieter Wadow, Aachen, both of Germany, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Jan. 25, 1971, Ser. No. 109,120

Claims priority, application Netherlands, Feb. 21, 1970, 7002477

Int. Cl. G03g *15/02*

U.S. Cl. 250—49.5 ZC **10 Claims**



Apparatus for charging an insulating layer comprising an ion source for simultaneously producing a corona discharge of positive and negative ions and an acceleration electrode for extracting negative ions to uniformly charge the insulating layer. The ion source comprises at least one main electrode, an auxiliary electrode and a counter electrode coaxial to the main and auxiliary electrodes, and the accelerating electrode is arranged at the remote side of the layer to be charged. The apparatus further comprises deflecting electrodes and a plate electrode further acting upon the distribution of charge across the insulating layer.

3,708,662

X-RAY PHOTOGRAPHING APPARATUS

Toshio Kurokawa, Minato-ku, Tokyo; Shoji Nishiyama, Hachinohe-shi, Aomori-ken; Toshio Okubo, Atsugi-shi, Kanagawa-ken, and Katsumi Nagai, Suginami-ku, Tokyo, all of Japan, assignors to Toshio Kurokawa, Tokyo; Shoji Nishiyama, Hachinohe-shi, Aomori-ken and Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

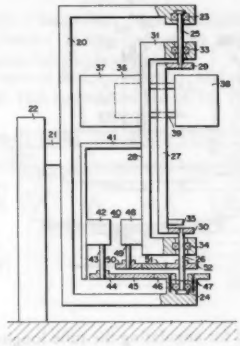
Filed Sept. 10, 1970, Ser. No. 71,194

Claims priority, application Japan, Sept. 11, 1969, 45/71627; Sept. 29, 1969, 45/77080

Int. Cl. G03b *41/16*

U.S. Cl. 250—55 **2 Claims**

An X-ray photographing apparatus capable of adjustably moving or rotating separately or in combination the following three means: means for rotating a bed board about a shaft fitted thereto; means for rotating the bed board in a vertical plane so as to displace an examinee lying on the bed board from a horizontal to an upright position or vice versa; and means for jointly shifting in the lengthwise direction of the examinee an X-ray tube and X-ray image detecting and photographing device which are so disposed as to have the examinee therebetween.



3,708,663

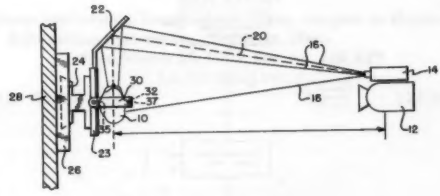
OPTICAL CEPHALOSTAT

William Biederman, 352 Hempstead Avenue, Rockville Centre, N.Y.

Filed Aug. 11, 1971, Ser. No. 170,913

Int. Cl. G03b *41/16*

U.S. Cl. 250—59 **9 Claims**



Methods and apparatus are provided for the three-dimensional positioning by optical means of a head including simultaneous vertical and horizontal orientation for the taking sequentially of X-rays and/or photographs over a period of time in which the head is aligned exactly the same for each X-ray and/or photograph session in the sequence. In addition, preliminary substitution means are provided for aligning the apparatus prior to insertion of the head, thus eliminating prolonged exposure of a patient to positioning procedures requiring no motion and uncomfortable mechanical contact.

3,708,664

DIAGNOSTIC X-RAY SYSTEM

John W. Bock; Orrin G. Feiertag, and Raymond J. Sullivan, all of Milwaukee, Wis., assignors to General Electric Company

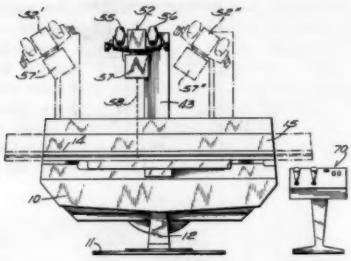
Filed Nov. 12, 1970, Ser. No. 88,891

Int. Cl. G01n *23/00*

U.S. Cl. 250—61.5 **12 Claims**

A tilting diagnostic x-ray table is provided with a longitudinally extending beam at its rear. A tube carriage is movable lengthwise of the beam. A column extending upwardly from the tube carriage supports a horizontal tube arm for bidirectional translation laterally of the x-ray table top. At the end of the arm, which is over the table, there is an x-ray tube which is on a rotational axis that extends longitudinally of the table. Means are provided for laterally angulating the x-ray tube on its longitudinal axis synchronously with translational

movements of the tube arm so that the central beam from the x-ray tube is always pointed essentially at the center of the x-ray image sensing device which is under the table top. Means



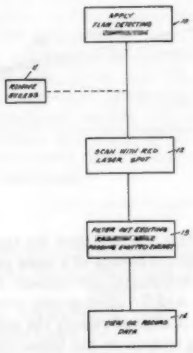
are also provided for angulating the tube longitudinally as the tube carriage is shifted on the beam in conjunction with tomography.

3,708,665

METHOD AND COMPOSITION FOR NON-DESTRUCTIVE ANALYSIS USING RED LASER BEAMS

David W. Prine, Maywood, Ill., assignor to Magnaflux Corporation, Chicago, Ill.

Filed May 3, 1971, Ser. No. 139,766
Int. Cl. G01n *21/16*
U.S. Cl. 250—71 T **10 Claims**



Method and compositions for non-destructive analysis employing a flaw-detecting composition having a dye therein which is excitable by red light, using a source of substantially monochromatic red light as the incident radiation to detect the presence of any such composition which has become lodged in or around flaws in the surface of the test piece.

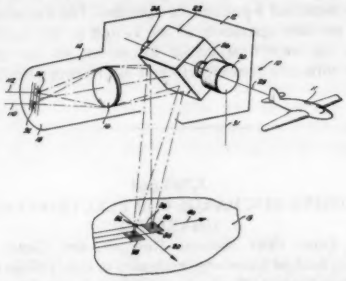
3,708,666

MULTIPLE DETECTOR SCANNER WITH DETECTORS SPACED ACROSS SCAN DIRECTION

Hamilton Barhydt, Playa Del Rey, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Continuation-in-part of Ser. No. 746,555, July 22, 1968. This application April 30, 1970, Ser. No. 33,415
Int. Cl. G01t *1/16*; H04n *3/00, 7/00*
U.S. Cl. 250—83.3 H **19 Claims**

The multiple element detector array scanner achieves improved angular resolution in a direction at right angles to the scan direction, by spacing the detectors by substantially one-half detector width in the direction at right angles to the scan



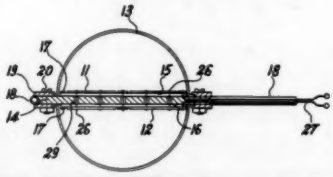
direction, rather than reducing the size of the detector. This array arrangement is particularly useful with infrared detector elements.

3,708,667

INSTRUMENT FOR MEASURING THE SOLAR ENERGY ABSORBED BY THE EARTH AND THE PLANTS

Pierre M. Denis, Grenoble, and Roger Guicherd, Saint-Egreve, both of France, assignors to Commissariat A l'Energie Atomique, Paris, France

Filed Sept. 7, 1971, Ser. No. 177,965
Claims priority, application France, Sept. 9, 1970, 7032461
Int. Cl. G01t *1/16*
U.S. Cl. 250—83.3 H **7 Claims**



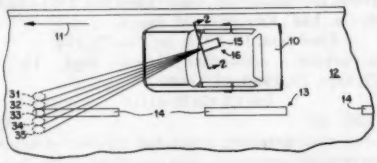
An instrument for measuring the solar energy absorbed by the earth includes a flat conductive element defining opposed faces each provided with a layer capable of absorbing solar radiation. The conductive element includes a central layer capable of being maintained at a constant temperature close to ambient temperature. In use the instrument is positioned with one absorbent layer receiving solar radiation and the other radiation reflected from the surface, the difference in thermal fluxes from the two layers being measured using a thermocouple circuit.

3,708,668

VEHICLE OPTICAL GUIDANCE SYSTEM

James W. Tilley, Lewis House, 2412 Pierce Avenue, Apt. 603E, Nashville, Tenn.

Filed June 1, 1971, Ser. No. 148,584
Int. Cl. G05b *1/00*
U.S. Cl. 250—202 **10 Claims**



A guidance system for a motor vehicle having a steering system including a plurality of photoelectric elements viewing

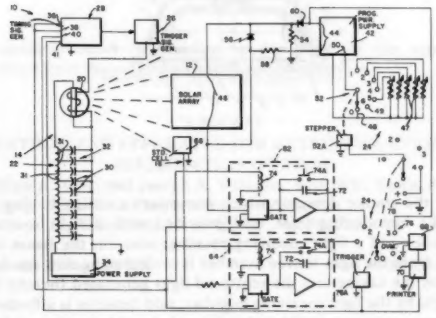
an elongated strip transversely of the broken center line of a road; electronic circuitry including position-registers for receiving the input signal generated by the photoelectric elements and for producing output position signals corresponding to the new and old positions of the vehicle relative to the line; a comparator circuit for comparing the position signals to produce a control signal; and a control mechanism responsive to the control signal to restore the direction of the motor vehicle to a true course relative to the center line.

3,708,669

METHOD AND APPARATUS FOR CALIBRATING A SOLAR ARRAY

George A. Work, Malibu, Calif., assignor to TRW Inc., Redondo Beach, Calif.

Filed May 4, 1970, Ser. No. 34,362
Int. Cl. G01j *1/32*
U.S. Cl. 250—205 **12 Claims**



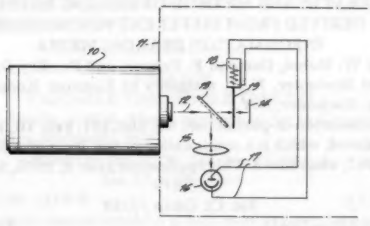
A method and apparatus for calibrating a solar array to predict its characteristic volt-ampere or I-V curve in outer space by periodically illuminating the array in rapid succession with a flashlamp whose radiation closely simulates natural solar radiation in outer space, and measuring the array current at short circuit, open circuit, and selected array voltage levels. The output of a standard cell which is illuminated concurrently with the solar array by each flash is recorded to permit correction for any variation from flash-to-flash.

3,708,670

PROTECTING STRUCTURE FOR TELEVISION CAMERAS EMPLOYING ZOOM LENSES

Frank G. Back, 55 Sea Cliff Avenue, Glen Cove, N.Y.

Filed Sept. 21, 1970, Ser. No. 73,846
Int. Cl. H01j *39/12*
U.S. Cl. 250—206 **4 Claims**



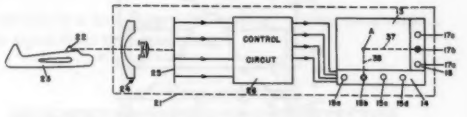
The photosensitive elements of television cameras equipped with zoom lenses are protected by a combined beam splitter and photocell arrangement which activates a shutter in the event of excessive light entering the lens. The apparatus will operate in all zoom positions of the lens.

3,708,671

SYSTEM FOR INDICATING DIRECTION OF INTRUDER AIRCRAFT

Anne W. Story, Cambridge, Mass., assignor to the United States of America as represented by the National Aeronautics & Space Administration

Continuation of Ser. No. 808,822, March 20, 1969, abandoned. This application March 16, 1971, Ser. No. 124,909
Int. Cl. G08g *5/00*; **H05b** *37/02, 39/04*
U.S. Cl. 250—209 **3 Claims**



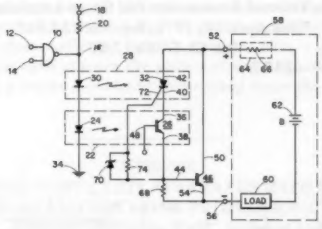
A pilot warning indicator system is disclosed including a flashing beacon, a detector, and an indicating panel on each aircraft. The detector responds to radiant energy from another aircraft's beacon by energizing particular signal lamps positioned in the periphery of the pilot's normal field of view. Since the positions of the energized lamps are related to the direction from which radiant energy is received by the detector, the pilot is apprised of the relative position of an intruder aircraft without any shift in visual fixation.

3,708,672

SOLID STATE RELAY USING PHOTO-COUPLED ISOLATORS

Zoran Marinkovic, Framingham, Mass., assignor to Honeywell Information Systems Inc., Waltham, Mass.

Filed March 29, 1971, Ser. No. 128,837
Int. Cl. H01j *39/12*
U.S. Cl. 250—209 **12 Claims**



A solid state relay coupled to provide current flow to a load from a high voltage source provides high isolation between the relay's output terminals and an input control gate by means of a photo transistor coupled pair and a photo silicon controlled rectifier coupled pair connected in series circuit for response to the input control gate and by means of an output transistor responsive to the series circuit for providing a current path from the high voltage source through one output terminal, the collector-emitter path of the output transistor and to a load via the other output terminal.

3,708,673

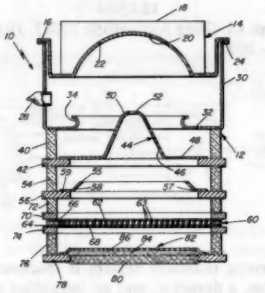
IMAGE INTENSIFIER TUBE

Allen Palmer Blacker, Jr., New Milford, Conn., assignor to The Machlett Laboratories, Incorporated, Springdale, Conn.

Filed June 10, 1971, Ser. No. 154,243
Int. Cl. H01j *31/50*
U.S. Cl. 250—213 VT **10 Claims**

An image intensifier tube comprising a generally tubular envelope having disposed therein, in axially spaced relationship

with one another, a spherically curved photocathode located adjacent an input faceplate at one end of the envelope, a frustoconical anode, an electron image decelerating electrode, a microchannel plate, and an imaging screen which is located adjacent an output faceplate at the other end of the



envelope. The microchannel plate is provided with means for ensuring substantially uniform amplification of an electron image emitted by the photocathode and, preferably, also is provided with means for preventing the passage of visible light through the apertures thereof.

3,708,674

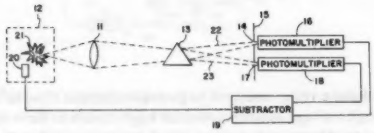
COMBUSTION DETECTOR

Robert L. Trimpi; John E. Nealy, both of Newport News, and William L. Grose, Williamsburg, all of Va., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed April 16, 1971, Ser. No. 134,567

Int. Cl. G08b *17/00*

U.S. Cl. 250—217 F **6 Claims**



A device for generating a rapid response signal upon the radiation-emitting combustion reaction of certain gases (or other materials) in order to provide a means for the detection and identification of such reaction and concurrently discriminate against spurious signals. This combustion might be the first stage of a coal mine explosion process, and thereby this device could provide a warning of the impending explosion in time to initiate quenching action. This device has the capability of distinguishing between the light emitted from a combustion reaction and the light emitted by miners' lamps, electric lamps, welding sparks or other spurious events so that the quenching mechanism is triggered only when an explosion-initiating combustion occurs.

3,708,675

SMOKE DETECTOR IN WHICH AIR ENTRANCE AND EGRESS ARE LOCATED IN OPPOSITELY DISPOSED SURFACES WHICH ARE SHAPED TO CAUSE AN AIR VELOCITY DIFFERENTIAL

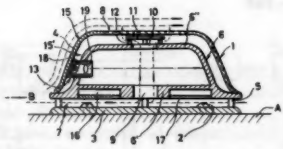
Kenichi Tashiro, Tokyo; Yoshio Furuto, Kanagawa; Takeji Shigihara, Tokyo; Kazuo Ikawa, Tokyo, and Yukimitsu Okano, Tokyo, all of Japan, assignors to The Furukawa Electric Co. Ltd and Stanley Electric Co., Ltd., Tokyo, Japan

Filed Sept. 15, 1970, Ser. No. 72,361

Claims priority, application Japan, Sept. 19, 1969, 44/75100; Sept. 26, 1969, 44/77092; Sept. 26, 1969, 44/77093

Int. Cl. G01n *21/00, 21/26*; G08b *21/00*

U.S. Cl. 250—218 **6 Claims**



In the smoke detector which comprises a casing having a smoke introducing inlet, and provided with a light source member and a light receiving member wherein the beam of light from the light source member is projected against smoke within the casing and the scattered light generated thereby is caught by the light receiving member, said detector is afforded the improvements (1) that the casing is provided with an inlet and an outlet for smoke flow and two air flow passages so arranged as to cause the air to flow at different velocities, when under the influence of smoke flow, such difference in velocity creating a difference in static pressure that helps introduce smoke into the casing; (2) that a light sheltering plate surrounding the light receiving member is provided within the casing said plate having apertures through which a desired portion of said scattered light is led into the light receiving member; and (3) that a reflector having a desired number of surfaces is provided, on which light beams from the light source member make multiple reflections and pass concentrically through the determined space of the smoke passages.

3,708,676

APPARATUS AND METHOD OF SENSING RADIATION DERIVED FROM DIFFERENT PORTIONS OF INFORMATION BEARING MEDIA

Robert W. Huboi; Osmond F. Palmer, and Bradley D. Rising, all of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

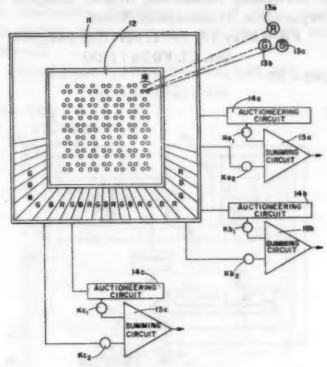
Continuation-in-part of Ser. No. 800,351, Feb. 10, 1969, abandoned, which is a continuation of Ser. No. 640,136, May 22, 1967, abandoned. This application June 5, 1970, Ser. No. 43,879

Int. Cl. G01n *21/30*

U.S. Cl. 250—219 Q **19 Claims**

Apparatus is disclosed for classifying originals (or information bearing media) to be printed or reproduced. The apparatus includes an assembly having a first radiation sensitive device for sensing the background or peripheral portion of the original, and a second radiation sensitive device responsive to the discrete sub-portions of the central or subject portion of

the original to provide a plurality of corresponding signals, and a circuit for selecting one of the plurality of signals having



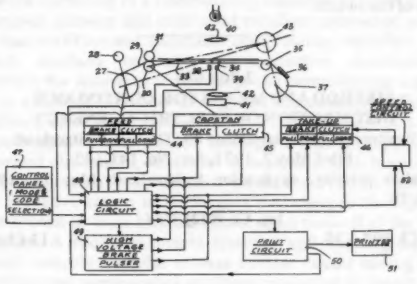
a predetermined relationship to the other of the signals derived from the second radiation sensitive device.

3,708,677

METHOD AND APPARATUS FOR RETRIEVING CODED INFORMATION ON FILM

Joseph A. Volk, and Joseph A. Volk, Jr., both of St. Louis, Mo., assignors to Beta Corporation, St. Louis, Mo.

Filed July 29, 1970, Ser. No. 59,277
Int. Cl. G08c 9/06
U.S. Cl. 250—219 DR **20 Claims**



This invention comprises a method and apparatus for retrieving coded information recorded on film and includes a film transport means for driving the film at a relatively high velocity, means for programming a selected code variation for comparison with the code variations on the film, and means for stopping the film on the information relating to the programmed code variations.

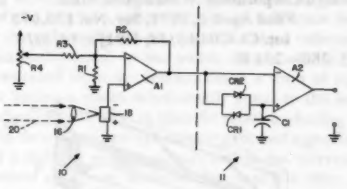
3,708,678

VARIABLE THRESHOLD CIRCUIT

Eugene J. Kreda, Natick, Mass., assignor to Servo Corporation of America, Hicksville, N.Y.

Filed Oct. 30, 1970, Ser. No. 85,624
Int. Cl. G08c 9/06
U.S. Cl. 250—219 D **8 Claims**

A threshold circuit employs a high gain differential amplifier having a signal source connected to the inverting input connection thereof. Connected between the signal source and the noninverting connection of the differential amplifier is a pair of diodes connected in an opposite polarity arrangement and in parallel. Also connected to the noninverting input connection is a capacitor to hold the signal level at the noninverting input connection constant for a predetermined interval during a polarity reversal of the signal from the signal source. The circuit threshold is maintained at one diode voltage drop relative to the signal from the signal source.

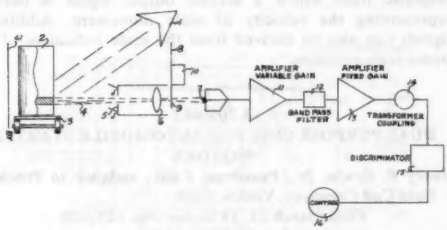


3,708,679

HIGH-SPEED INVERTED OBJECT DETECTOR

Michael J. Stock, Oak Lawn, and John R. Kotal, Chicago, both of Ill., assignors to Continental Can Company, Inc., New York, N.Y.

Filed Aug. 24, 1970, Ser. No. 66,311
Int. Cl. H01j 39/12
U.S. Cl. 250—223 R **5 Claims**



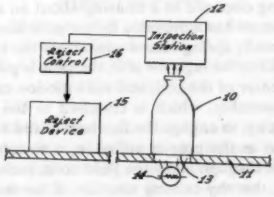
This inverted object detector and reject mechanism operates by detecting the difference in reflected light from a correctly oriented can body and an inverted can body. A lens system conducts reflected light from a can onto a photocell. An electrical system takes the photocell output and may convert it into a reject movement, depending upon the reflected light.

3,708,680

CONTAINER INSPECTION APPARATUS WITH PLURAL DETECTORS AND ROTATING PROJECTION SYSTEM

Fredrick L. Calhoun, Torrance, Calif., assignor to Automatic Sprinkler Corporation of America, Cleveland, Ohio

Filed June 4, 1968, Ser. No. 734,394
Int. Cl. H01j 39/12
U.S. Cl. 250—223 B **12 Claims**

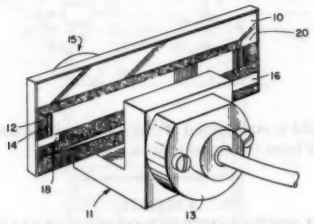


An apparatus for inspecting containers is disclosed in which a rotating and nutating projection of an inspection field is sensed by a photocell arrangement, each cell being provided with one or several light stops. The output signals of adjacent cells are a-c processed in different channels.

3,708,681
POSITION AND VELOCITY SENSOR

Richard J. Ivers, Arlington, Mass., assignor to Dynamics Research Corporation, Wilmington, Mass.

Filed April 1, 1971, Ser. No. 130,073
Int. Cl. G01d 5/34; H01j 3/14, 5/16
U.S. Cl. 250—231 R 9 Claims

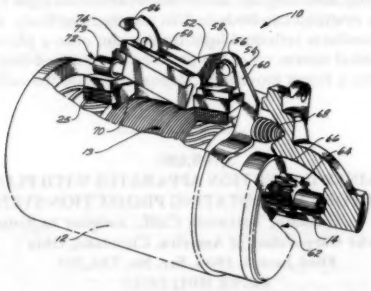


An electro-optical transducer capable of producing output signals representative of both speed and position of a movable element. A scale has formed thereon a first track having a ruled pattern from which is produced an interference pattern having sensible light variations from which are derived a first output signal representative of relative scale position. A second track on the scale has a linearly varying optical response from which a second output signal is derived representing the velocity of scale movement. Additional signals can also be derived from the scale indicative of extreme scale positions.

3,708,682
DUAL PURPOSE COIL FOR AUTOMOBILE STARTER MOTORS

Henry P. Erwin, Jr., Pasadena, Calif., assignor to Precision Field Coil Company, Venice, Calif.

Filed March 25, 1971, Ser. No. 127,928
Int. Cl. F02n 11/00
U.S. Cl. 290—37 2 Claims

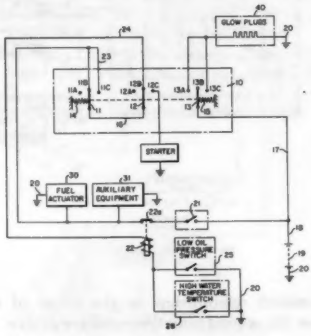


A dual purpose coil is disclosed for use as both a solenoid and as one of the field coils of an automobile starter motor, the coils being disposed in a housing about an armature. The dual purpose coil has a movable motor pole associated with it which is normally spring biased apart from the coil. When initial current flows through the coil, the pole is pulled into position in the center of the coil, and such motion causes a starter drive gear assembly, which is clutched to the armature for rotation thereby, to engage the flywheel of the automobile engine. As soon as the pole is pulled-in, a switch is opened to direct current through all of the field coils, including the dual purpose coil, thereby causing rotation of the motor armature and gear assembly to crank the automobile engine. The dual purpose coil is defined by only a single conductive winding of predetermined turns and dimensions which operates not only to pull-in the pole during initial current flow therethrough, but additionally to hold-in the pole during current flow through all of the coils.

3,708,683
DIESEL ENGINE STARTING SWITCH AND CIRCUIT

Leland L. Howland, Rosemont, Minn., assignor to Thermo King Corporation, Minneapolis, Minn.

Filed May 12, 1971, Ser. No. 142,582
Int. Cl. F02n 11/00
U.S. Cl. 290—37 6 Claims

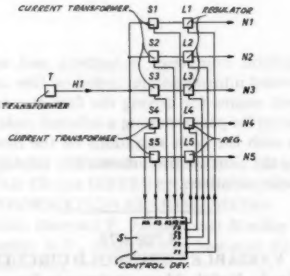


A diesel engine pre-heating, starting and running switch and circuit is comprised of a three pole, three position switch connecting the battery source to the engine starter, the electric fuel actuator and auxiliary equipment, the pre-heating glow plugs and a safety circuit that can be energized only when the engine is running, the fuel actuator can be energized only in the run and start positions of the switch, the starter can be energized only in the start position of the switch, and the glow plugs can be energized only in the pre-heat and starting positions of the switch.

3,708,684
METHOD AND MEANS FOR CONTINUOUS DISTRIBUTION OF ELECTRICAL ENERGY

Max Breitmeier, Oetwilerstrasse 89, Thalwil, Switzerland

Filed May 7, 1971, Ser. No. 141,143
Claims priority, application Switzerland, May 14, 1970, 7208/70
Int. Cl. H02j 3/14
U.S. Cl. 307—35 13 Claims



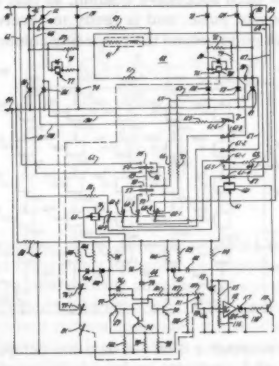
In the power distribution system disclosed, a main line feeds many secondary lines. Each secondary line is split into two branch lines. A maximum regulator in the first of each pair of branch lines limits the output in the first of each pair of branch lines. An output regulator in the second of each of the branch lines controls the current in the second in each of the branch lines in response to the output of the corresponding first branch line. Control means responsive to the total output of all the secondary lines further regulates the output regulators in each of the second branch lines.

3,708,685

HIGH INDUCTIVE LOAD ENERGIZING CIRCUIT

Joseph G. Miller, Madison; John H. Stichman, Verona, and Theodore Bernstein, Madison, all of Wis., assignors to Joseph G. Miller; Marvin Evans and David H. Miller, part interest to each

Filed June 1, 1971, Ser. No. 148,491
Int. Cl. H02j 1/00
U.S. Cl. 307—104 19 Claims



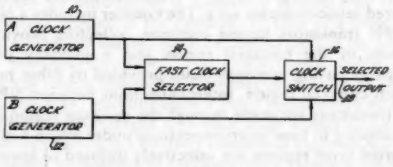
A lifting magnet is connected to a D.C. supply by a pair of silicon-controlled load rectifiers. A manual double-pole, three position, center-off start switch connects the anode to the gate of the respective controlled rectifiers. Commutating networks are connected in parallel with the magnet and rectifiers, each network consisting of a commutating capacitor in series with a resistance element and controlled rectifiers connected across the load rectifiers and associated commutating capacitor. The switch similarly connects the respective commutating rectifiers for actuation to discharge the commutating capacitor in a reverse direction through the controlled rectifiers to positively drive the main load rectifier off. The magnet is connected back to the source through a pair of oppositely polarized discharging diodes or to a parallel span branch including a normally back-biased diode and variable resistor. The inductive energy in the magnet is discharged through the span branch or back into the source upon turn-off of the load rectifiers. A discharge current detection and reversing control circuit controls a similar reverse current circuit having load rectifiers and commutating rectifiers connected in circuit with the magnet and commutating capacitors. The control circuit provides for automatic sequential firing of forward commutation and reverse current circuits.

3,708,686

FREQUENCY COMPARATOR

Luther C. Butler, Jr., Garden Grove, Calif., and Robert S. Jamieson, No permanent address, assignors to Lorain Products Corp., Lorain, Ohio

Filed April 30, 1970, Ser. No. 33,208
Int. Cl. H02j
U.S. Cl. 307—149 30 Claims



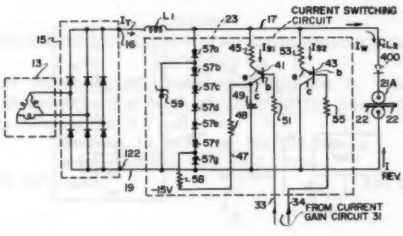
A high precision timer employs a pair of redundant crystal clock generators of a type that will either fail dead or at lower frequency. Frequencies of the two clocks are compared and the faster of the two is selected to provide the desired timing. To select a point of precise, unambiguous and repeatable relative phasing between the two clock signals there is generated from one of the clocks a series of pairs of reference interval pulses with the pulses of each pair separated by a reference interval substantially equal to the width of one of the pulses. There is generated from the second clock a train of sighting pulses each having a width substantially equal to the interval between pulses of each pair. A specific relative phasing of the two clocks is then identified by searching for and signalling occurrence of a sighting pulse precisely within the reference interval of pulses of a pair. Relative frequency is then determined and end of a measurement interval signalled by occurrence of pulses produced from one clock out of consecutive alternation with pulses produced by the other clock. Structure and circuitry are also provided to indicate when one of the clock generators is too slow to use or is entirely bad.

3,708,687

CONTROL CIRCUITRY FOR DIRECT CURRENT

James P. Tatham, Wheaton, Ill., assignor to Continental Can Company, Inc., New York, N.Y.

Division of Ser. No. 726,440, May 3, 1968, Pat. No. 3,590,202.
This application Feb. 24, 1971, Ser. No. 118,394
Int. Cl. H03k 17/00
U.S. Cl. 307—202 15 Claims



Control circuitry is disclosed herein for controlling the flow of direct current through a load. The control circuitry includes a switching circuit for selectively switching the current flowing through the load to ON and OFF conditions at a high repetition rate.

One embodiment of the control circuitry is particularly adapted for use with, and forms an integral part of, a direct current electrical resistance welding system for welding metallic blanks which are serially passed between cooperating welding electrodes.

3,708,688

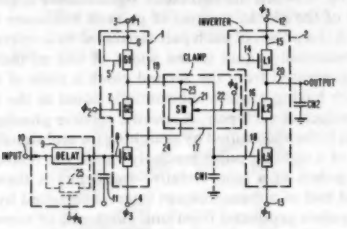
CIRCUIT FOR ELIMINATING SPURIOUS OUTPUTS DUE TO INTERELECTRODE CAPACITANCE IN DRIVER IGFET CIRCUITS

Ying Luh Yao, Mahopac, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed June 15, 1971, Ser. No. 153,323
Int. Cl. H03k 19/08
U.S. Cl. 307—205 14 Claims

A number of field effect transistor circuits for driving loads having large capacitances is disclosed. Where insulated gate field effect transistors having relatively large driving current requirements are utilized, the interelectrode capacitances present are of such magnitude that, when the output circuit is energized from clocked sources normally OFF devices are turned ON providing spurious outputs. Circuit arrangements are provided for maintaining normally OFF devices in that condition during a portion of a given clock cycle by clamping an electrode (the gate of an FET) to a desired value while

simultaneously isolating the clamped device or devices from changing potentials which may result from premature changes



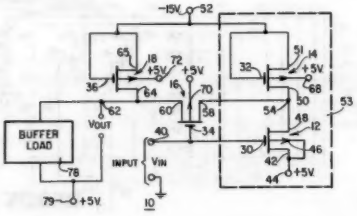
at the input of the circuit or elsewhere in the circuit. An inverter driver and an interface circuit for dynamic to static logic are shown.

3,708,689

VOLTAGE LEVEL TRANSLATING CIRCUIT

William W. Lattin, Phoenix, Ariz., assignor to Motorola, Inc., Franklin Park, Ill.

Filed Oct. 27, 1971, Ser. No. 192,806
Int. Cl. H03k *17/60*
U.S. Cl. 307—205 **8 Claims**



The buffer circuit, which can convert TTL logic levels to MOS logic levels, includes four low threshold MOS transistors. Two of these devices are connected between positive and negative supplies in the configuration of a MOS inverter circuit, and the third device forms an output switch connected to the buffer input, the inverter output, and the buffer output terminals. The fourth device is connected in a MOS load configuration between the drain of the third device and the negative supply. The output switch device amplifies a small change in voltage at the drain of the inverter switch device occurring in response to a TTL "one," to enable its load to apply a MOS "one" to the output. Because of the configuration of the circuit, the inverter load device can have a high resistance and the "body-effect" of the output switch device tends to increase its threshold voltage in the nonconductive state, thus making it less responsive to noise signals.

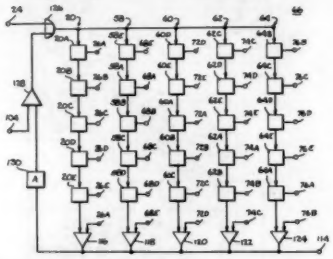
3,708,690

SHIFT REGISTER

John O. Paivinen, Newtown Square, Pa., assignor to Mos Technology, Inc., Valley Forge, Pa.

Continuation-in-part of Ser. No. 108,124, Jan. 20, 1971, abandoned. This application Feb. 22, 1971, Ser. No. 117,437
Int. Cl. G11c *19/00*
U.S. Cl. 307—221 R **32 Claims**

A multi-phase shift register having a plurality of parallel columns each comprising n stages, where *n* is preferably greater than 3, and where the data is advanced along each such column by first shifting the data from its n^{th} stage to the column output terminal, then from the preceding stage to the n^{th} stage, and then from each of the next preceding stages sequentially to their succeeding stages, until the first stage of the column is reached, whereupon the first stage is emptied of data and free to receive new input data. The advance sequence of the parallel columns is synchronized with the application of the input data, and this sequence is constantly repeated, so that successive input bits of data are directed to different respective columns of the shift register, and then along these columns to their common output terminal, where the pulses are recombined to form the original input pulse series. In one embodiment the advance sequence is delayed one clock pulse in each successive column, so that each column delivers an output pulse, and is ready to receive new input data, one clock pulse behind the preceding column. In another



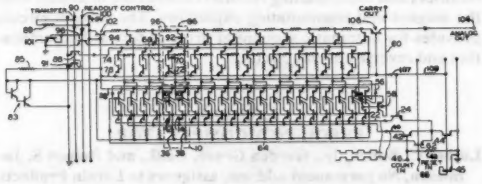
embodiment, successive n bits of data are delayed relative to one another and applied simultaneously to different first stages of *n* parallel columns, and then are advanced along the column simultaneously with the same advance sequence. At the output of the columns, the bits of data are again delayed and recombined to form the original time sequence series. Several of these multi-phase shift registers are generally connected in cascade, and the advance sequences of the cascaded registers synchronized, so that a large number of data bits may be stored and shifted along the respective columns of the register.

3,708,691

LARGE SCALE INTEGRATED CIRCUIT OF REDUCED AREA INCLUDING COUNTER

Barrie Gilbert, Portland, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.

Division of Ser. No. 845,286, July 28, 1969. This application Jan. 21, 1972, Ser. No. 219,727
Int. Cl. H03k *23/08*
U.S. Cl. 307—225 B **8 Claims**



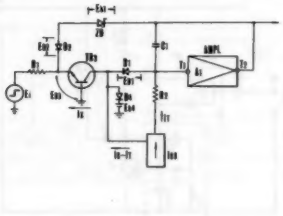
An integrated circuit including four digital decade ring counters, four buffer storage circuits and four digital to analog converters is described in which each counter and associated storage circuit is provided within one epitaxial region surrounded by a single isolation region to greatly reduce the required semiconductor area. The counter includes a plurality of NPN transistors having common collectors provided by portions of the epitaxial region and a plurality of PNP transistors having common bases provided by other portions of such epitaxial region. Interconnections between NPN and PNP transistors are made through the epitaxial region including collector to base interconnections under which a plurality of buried layer regions are selectively diffused to lower their resistances. In addition, the PNP counter transistors are each provided with three separate collectors to simplify the counter.

3,708,692

RAMP VOLTAGE WAVE GENERATING CIRCUITS

Hideo Matuoka, Tokyo, Japan, assignor to Iwatsu Electric Company, Ltd., Tokyo, Japan

Filed May 4, 1971, Ser. No. 140,130
Claims priority, application Japan, May 7, 1970, 45/38428
Int. Cl. H03k 4/08
U.S. Cl. 307—228 3 Claims



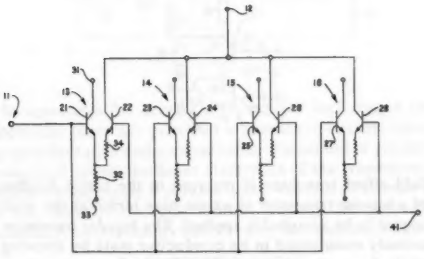
In a ramp voltage wave generating circuit, there are provided a Miller's integrator including an amplifier, a capacitor connected in parallel with the amplifier and a resistor with one terminal connected to the input side of the amplifier; a source of constant current current connected to the other terminal of the resistor; first means for maintaining at a constant value the reference potential at the output terminal of the integrator in the absence of an input signal; second means for maintaining at the constant value the reference potential in the presence of the input signal; and a three terminal active element with two terminals connected to the second means and to the source of the input signal and the remaining terminal connected to a source of reference potential.

3,708,693

GAMMA CORRECTOR

Hermann A. Ferrier, San Jose, and Gordon F. MacGinitie, Menlo Park, both of Calif., assignors to Ferrex Corporation, San Carlos, Calif.

Filed May 19, 1971, Ser. No. 144,782
Int. Cl. G06g 7/12
U.S. Cl. 307—229 4 Claims



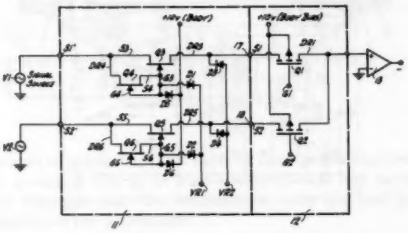
A circuit for introducing a controlled nonlinearity in the video voltage applied to the cathode ray tube of a color film printing system for making the tube display picture the analog of the photographic paper. The characteristic curve of a cathode ray tube is matched to the reflectance curve of photographic paper by operating upon a video signal with a number of parallel amplifier stages with each stage comprising a pair of transistors having the emitters connected together and to a power supply by resistors of predetermined values. Each stage has a different characteristic and the outputs are summed to establish a predetermined nonlinear amplification.

3,708,694

VOLTAGE LIMITER

Arthur D. Evans, Saratoga, Calif., assignor to Siliconix Incorporated, Santa Clara, Calif.

Filed May 20, 1971, Ser. No. 145,429
Int. Cl. H03k 5/08
U.S. Cl. 307—237 6 Claims



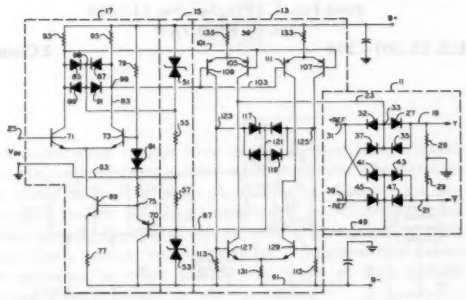
A voltage limiter circuit and semiconductor structure employing field effect transistors and diodes adapted to be connected between a source of signal and the input of associated apparatus to provide over-voltage protection to the apparatus.

3,708,695

HIGH SPEED SWITCH WITH COMPLEMENTARY OUTPUTS

William M. Davis, Jr., Vestal, and Richard A. Windya, Binghamton, both of N.Y., assignors to The Singer Company, Binghamton, N.Y.

Filed Oct. 19, 1971, Ser. No. 190,598
Int. Cl. H03k 1/14, 5/08, 17/74
U.S. Cl. 307—237 10 Claims

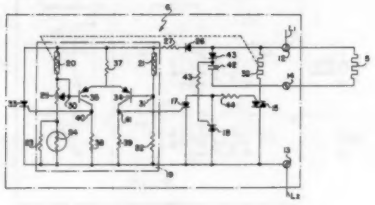


A high speed switching circuit is shown which provides highly accurate complementary outputs in which a first stage develops two voltages, one a junction drop above and one a junction drop below an internal reference and selectively applies them to two output lines as a function of the logic level of an input signal, a bipolar current source uses the two voltages to select the direction of the current to be supplied on two lines to an output stage and the output stage comprising four pairs of matched catching diodes connected on one side to positive and negative output references and on the other through a resistor to ground causes the current to split through the diodes in the properly biased pairs in turn causing equal drops across the diodes resulting in output voltages equal to the output references.

3,708,696
ZERO VOLTAGE SWITCH MEANS FOR CONTROL OF ELECTRIC LOAD CIRCUIT

Jerome L. Lorenz, Columbus, Ohio, assignor to Ranco Incorporated, Columbus, Ohio

Filed Jan. 28, 1971, Ser. No. 110,518
Int. Cl. H03k 17/56
U.S. Cl. 307—252 B 6 Claims

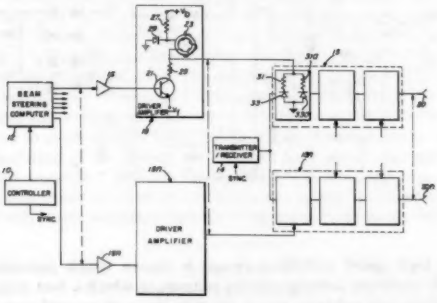


Four forms of the invention are shown and each comprises a zero voltage switching means for an AC electric load circuit having gate controlled semiconductors which are triggered in response to voltages in a condition sensitive bridge network connected in the AC power source for the load circuit. The network is shunted out of the power source circuit upon changes in power source voltage from zero in power source half cycles applied to the network whereby the components of the network are subjected only to relatively low voltages and during a brief portion of the half cycle. In one form of the invention, a resistance in the bridge network is heated in response to energization of the load circuit and tends to cause cycling of the switching means for accurate control of the load.

3,708,697
PHASE SHIFTER DRIVER AMPLIFIER

Christos J. Georgopoulos, Lowell, Mass., assignor to Raytheon Company, Lexington, Mass.

Filed Feb. 1, 1971, Ser. No. 111,395
Int. Cl. H03k 1/00
U.S. Cl. 307—270 2 Claims

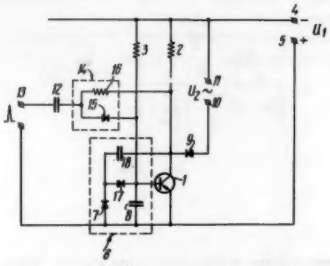


A driver amplifier for p-i-n diode phase shifters in a matrix of phase shifters in an antenna array is disclosed. The output stage of the driver amplifier is arranged so that, during each period in which the p-i-n diodes in any one of the phase shifters are forward-biased, an inductor is charged. Thus, when it is desired to back-bias any one of the p-i-n diodes, the energy in the inductor may be discharged through the p-i-n diode to decrease the time required to switch such diode to its back-biased condition.

3,708,698
BISTABLE COUNTING CIRCUIT BASED ON A TRANSISTOR

Feodosy Borisovich Grinevich, and Vladimir Andreevich Tsyganok, both of Kiev, U.S.S.R., assignors to Institut Elektrodi-Namiki Akademii Nauk Ukrainskoi SSR, Kiev, U.S.S.R.

Filed March 4, 1971, Ser. No. 120,846
Int. Cl. H03k 3/29
U.S. Cl. 307—289 1 Claim

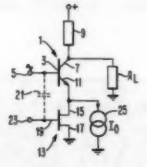


A pulse technique formed by a device which includes a bistable circuit based on a single transistor which is opened when the circuit is in one state, and closed when it is in the other. In order to provide for the switching of the transistor from one stable state to the other by pulses of one polarity arriving from a common busbar, the present device includes a count input. The present circuit is non-critical to changes in the supply voltages and nominal ratings of the components within a wide range.

3,708,699
HIGH-SPEED ANALOG SWITCHING WITH FET

Armin Heinz Frei, Rueschlikon, and Peter Vettiger, Thalwil, both of Switzerland, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed June 21, 1971, Ser. No. 154,932
Claims priority, application Switzerland, Oct. 9, 1970, 10475/70
Int. Cl. H03k 19/08
U.S. Cl. 307—304 5 Claims



A field-effect transistor is inserted in the series feedback path of a bipolar transistor at whose base terminal the analog input signal to be sampled is applied. The bipolar transistor is continuously maintained in its conductive state by drawing a current I_0 from the emitter. The field-effect transistor is switched back and forth between its high and low impedance states by a sampling signal applied to its gate. The analog input signal is amplified, and therefore sampled, only when the field-effect transistor is in its low impedance state.

An N-channel sampler-multiplexer is obtained by series-connecting a number of the above-described switches in a chain, with the gate electrodes of the field-effect transistors of all of the stages being connected to a common sampling line, and with the collector electrodes of all of the bipolar transistors of all of the stages delivering their sampled output signals into a common output line. To clearly separate the individual output signals, delay sections are inserted in the output line between neighboring stages.

3,708,700

AMPLIFIER CIRCUIT

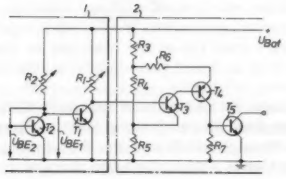
Helmut Moser, Heilbronn-Neckargartach, Germany, assignor to Licentia, Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Germany

Filed Jan. 28, 1971, Ser. No. 110,550

Claims priority, application Germany, Jan. 31, 1970, P 20 04 462.6

Int. Cl. H01v *5/00*

U.S. Cl. 307—309 **9 Claims**



An amplifier circuit comprises a common-emitter connected transistor into the collector path of which is connected a first resistance also connected to a voltage source and a voltage divider for adjusting the base emitter direct voltage and including a series connection of a second resistance and a diode, the second resistance being connected to the voltage source and the diode being connected in parallel with the base-to-emitter path of the transistor.

3,708,701

APPARATUS FOR DRIVING PIEZOELECTRIC TRANSFORMERS

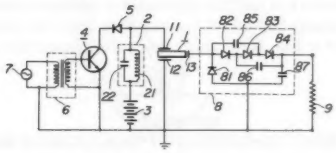
Takehiko Kawada, Yokohama, Japan, assignor to Denki Onkyo Company, Ltd., Tokyo, Japan

Filed March 18, 1971, Ser. No. 125,702

Claims priority, application Japan, March 20, 1970, 45/23735

Int. Cl. H04r *17/00*

U.S. Cl. 310—8.1 **6 Claims**



In apparatus for driving a transducer including a pair of electrodes there are provided a resonance circuit comprised by an inductance and a capacitance connected in parallel and connected across the input electrodes of the transducer, and means for supplying a periodic pulse current of narrow width to the resonance circuit thereby driving the piezoelectric transducer by the energy delivered by the resonance circuit.

3,708,702

ELECTROACOUSTIC TRANSDUCER

Otto Brunnert, Munich, and Hans Schierl, Ebersberg, both of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany

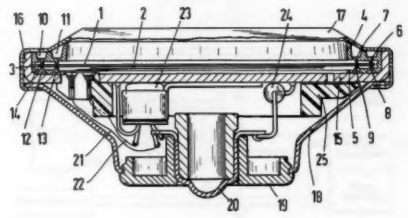
Filed Dec. 2, 1970, Ser. No. 94,409

Claims priority, application Germany, Dec. 5, 1969, P 19 612 217.0

Int. Cl. H01v *7/00*

U.S. Cl. 310—8.2 **8 Claims**

An electroacoustic transducer is described which is especially useful in telephones. An essentially flat frequency response curve in the voice range is realized by setting up a resonance peak in the free section of the diaphragm. The diaphragm is supported at its periphery by elastic bodies so that the fundamental frequency of oscillation of the diaphragm will have a node line in the region where the



diaphragm is supported. The support arrangement according to the invention sets up at least a second node line having a smaller diameter than the fundamental node line and in the free section of the diaphragm.

3,708,703

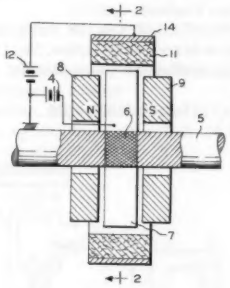
ELECTROSTATIC PRINCIPLE ROTATING ATOMIC MOTOR

Jack E. Dove, Rt. 4 P.O. Box 96 BW 23, Meridian, Miss.

Filed June 9, 1971, Ser. No. 151,368

Int. Cl. H02n *1/00*

U.S. Cl. 310—10 **6 Claims**



A motor shaft rotates from energy derived from charged particles emitted from atomic waste materials. The particles are stored in the shaft and exit radially by influence of a surrounding electric field to be received in a collector material. Vanes radially disposed about the shaft exchange energy electrostatically with the moving particles. A magnetic field causes the particles to move toward the vanes as they radially proceed from the shaft.

3,708,704

THERMIONIC CATHODES FOR MHD GENERATORS

Bart Zauderer, Bala Cynwyd, Pa., assignor to General Electric Company

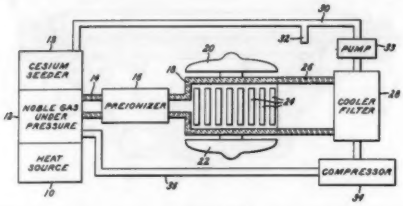
Filed Sept. 9, 1971, Ser. No. 178,881

Int. Cl. H02n *4/02*

U.S. Cl. 310—11 **7 Claims**

Efficiency of non-equilibrium magnetohydrodynamic generators is markedly increased by provision of thermionically emitting cathodes. Cesium in concentrations 0.1 to 0.3 percent improves plasma conductivity, and when deposited on hot tungsten vastly improves thermionic emission but only in absolute concentrations which, near atmospheric pressure, greatly exceed 0.1 to 0.3 percent. Cesium is applied topically in sufficient concentrations to tungsten surface either from

dispenser arrangement in which cesium passes through tungsten cathode face, or through apertures in channel wall adjacent to tungsten cathode face; amounts used are such that, after passage into main gas stream and mixture therewith, cesium concentration is still within permissible limits for improving plasma conductivity. Alternatively, generator is

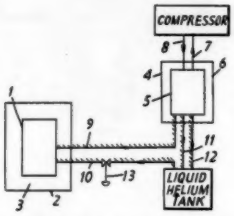


operated at high gas pressure (e.g., 5 atmospheres) so that the requisite absolute cesium concentration for thermionic emission is only the permissible 0.1 to 0.3 percent of the concentration of the pressurized plasma. The Invention herein described was made in the course of or under a contract or subcontract thereunder, (or grant) with the Department of the Navy.

3,708,705
LOW TEMPERATURE APPARATUS

Frank Tinlin, Newcastle upon Tyne, England, assignor to International Research & Development Company Limited, Newcastle upon Tyne, England

Division of Ser. No. 851,004, Aug. 18, 1969, abandoned. This application March 1, 1971, Ser. No. 119,627
Claims priority, application Great Britain, Aug. 27, 1968, 40,897/68
Int. Cl. H02k 9/00
U.S. Cl. 310—52 **5 Claims**



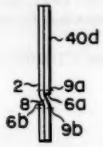
A cryostat for cooling superconducting windings in a homopolar dynamo-electric machine, which has two spaced inner members containing the windings and cooled by cryogenic fluid and an outer member enclosing a vacuum space around the inner members, wherein the refrigeration plant for the cryogenic fluid with the exception of the compressor, is disposed in the vacuum space between the inner members to eliminate the need for thermally insulated transfer lines.

3,708,706
MAGNETIC CORE ELEMENTS FOR ROTATING ELECTRICAL MACHINES

Yuji Akiyama; Yasuyoshi Ishii; Shigeo Ozawa, and Saburo Takeshima, all of Mie-ken, Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

Filed Oct. 12, 1971, Ser. No. 188,263
Claims priority, application Japan, Oct. 13, 1970, 43/90221
Int. Cl. H02k 1/06
U.S. Cl. 310—216 **1 Claim**

Magnetic core elements for rotating electrical machines which are prepared by winding a magnetic steel strip several times while applying a sufficient pressure permanently to deform it into a flattened state so as to obtain a smooth surface on both sides of the resultant coil, spot welding the individual

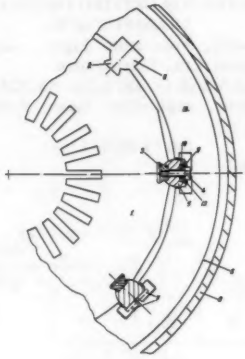


turns at least near the forward and rear ends of the coiled strip rigidly to form them into an integral body and punching a plurality of slots through which to insert the winding of a rotating electrical machine in a prescribed periphery of the coil.

3,708,707
FRAME AND CORE-TYPE DYNAMO-ELECTRIC MACHINE

Rolf-Dieter Kranz, Mannheim, Germany, assignor to Aktiengesellschaft Brown, Boveri & Cie, Baden, Switzerland

Filed May 13, 1971, Ser. No. 143,030
Claims priority, application Switzerland, May 21, 1970, 7513/70
Int. Cl. H02k 1/18
U.S. Cl. 310—258 **5 Claims**



A turbo-generator structure in which the stator, composed of a stack of laminations, is provided with a plurality of uniformly circumferentially spaced longitudinally extending dove-tailed grooves in which are received complementarily configured longitudinally extending wedges. These wedges are stressed into engagement with the sides of the grooves by means of an arrangement of longitudinally spaced screw bolts mounted in longitudinally extending wedge supports which have a rounded section that bear against an arcuate longitudinally extending recess in the surface of the lamination stack as the bolts are tightened by screwing them into the wedges. Thereafter, the stator assembly is inserted into a surrounding corset and secured in place by welding the wedge supports to the corset.

ERRATUM

For Class 312—209 see:
Patent No. 3,708,709

3,708,708

TREATMENT OF LIGHT EMITTING FILMS TO EXTEND THEIR USEFUL LIFE

Edwin J. Soxman, Santa Barbara, Calif., assignor to The Prudential Insurance Company of America, Los Angeles, Calif.

Filed Jan. 22, 1971, Ser. No. 109,004
Int. Cl. H01j *1/62*; **H05b** *33/10*
U.S. Cl. 313—108 A **5 Claims**

The method of driving, or of preconditioning, a vacuum-deposited light-emitting film of the type which comprises a binary compound of zinc and sulphur or selenium together with a manganese activator, so as to extend the useful life of the film. The voltage of the driving alternating current is raised so as substantially to maintain the initial luminescence of the film, and preferably is continuously raised, so as to accomplish the same. Also, this treatment may initially be given to the film and then discontinued, the film's useful life thereby having been extended beyond that life to which, without the treatment and at a constant voltage, its luminescence would have decayed to only one half of its initial value at that voltage.

3,708,709

MEDICINE TRAY FOR CABINET DRAWER

Robert B. Morrison, North Muskegon, Mich., and Lewis C. Wyman, Norwalk, Conn., assignors to E. H. Sheldon and Company, Muskegon, Mich.

Filed Jan. 26, 1971, Ser. No. 109,823
Int. Cl. A47b *81/00*; **A61b** *19/02*; **A47f** *3/14*
U.S. Cl. 312—209 **2 Claims**

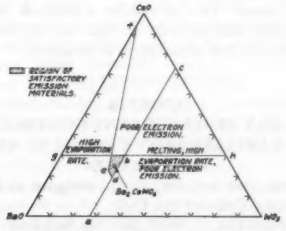
A plastic liner tray is removably carried in a nurse's cabinet cart and is provided with integral raised and spaced ribs supporting individual patient medicine trays and a hypodermic needle tray.

3,708,710

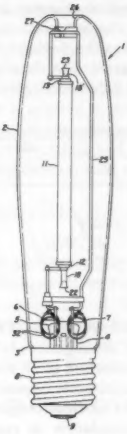
DISCHARGE LAMP THERMOIONIC CATHODE CONTAINING EMISSION MATERIAL

William E. Smyser, Chagrin Falls, and Dimitrios M. Speros, Painesville, both of Ohio, assignors to General Electric Company

Filed Dec. 14, 1970, Ser. No. 97,907
Int. Cl. H01j *17/04*
U.S. Cl. 313—213 **8 Claims**



Thermionic electrodes for high intensity discharge lamps, particularly sodium vapor lamps, contain dibarium calcium tungstate, Ba_2CaWO_6, as emission material. At temperatures over 1000°C, the material has good electron emission coupled with an evaporation rate appreciably lower than that of other barium-containing emission materials. Lamps show negligible voltage rise, maintenance of 89 percent at 14,000 hours, and life in excess of 14,000 hours.

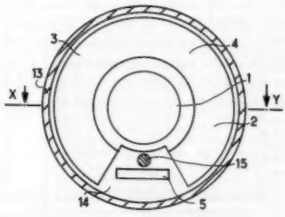


3,708,711

EXPLOSION PROOF HIGH VOLTAGE RESISTANCE ARRESTER

Robert Deville, Villeurbanne, France, assignor to Delle-Alsthom, Villeurbanne, France

Filed Feb. 22, 1971, Ser. No. 117,612
Claims priority, application France, Feb. 24, 1970, 7006630
Int. Cl. H01j *17/00*
U.S. Cl. 313—325 **5 Claims**



Lightning arresters of the type where yield resistors surrounding the spark gaps have resistors of toroidal or annular form divided into sectors; the various resistors being arranged in such a way that the said divisions are placed one under another or in helical configuration, so as to form a vertical or spiral duct.

3,708,712

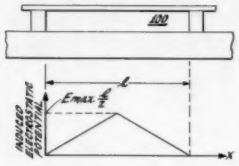
INTELLIGENCE-HANDLING DEVICE HAVING MEANS FOR LIMITING INDUCED ELECTROSTATIC POTENTIAL

John A. van Raalte, Princeton, and Victor Christiano, Trenton, both of N.J., assignors to RCA Corporation, New York, N.Y.

Filed Sept. 29, 1969, Ser. No. 861,592
Int. Cl. H01j *31/26*
U.S. Cl. 315—10 **6 Claims**

An intelligence-handling device comprising an insulating substrate; and electron gun for scanning and depositing elec-

trical charges on the surface of the substrate, the gun being regulated by electrical signals embodying the intelligence; and elemental conductors on the electron-bombarded surface, the elemental conductors being spaced apart by a distance adjusted to limit the electrical charges, and, therefore, the electrostatic potential, at the substrate to a desired maximum level. In one embodiment the device is further comprised of a light-reflective, deformable film fixedly disposed on the elemental conductors and deformed by the electrostatic potential



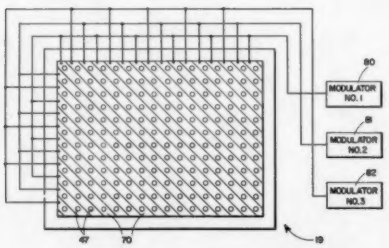
at the substrate, the deformations corresponding in intensity and distribution to the intelligence. In another embodiment, the device is further comprised of an electrode disposed at the surface of the substrate directly opposite the bombarded surface, being comprised of an electro-optic crystal exhibiting localized polarization retardation in response to the electrostatic potential between the bombarded surface and the electrode. The distribution of the areas where polarization retardation occurs, as well as the degree of retardation, corresponds to the intelligence.

3,708,713

PLURAL BEAM ELECTRON BEAM SCANNER UTILIZING A MODULATION GRID

Farrell A. McCann, Hawthorne, Calif., assignor to Northrup Corporation, Beverly Hills, Calif.

Filed May 1, 1970, Ser. No. 33,837
Int. Cl. H01j *29/41*
U.S. Cl. 315—12 **8 Claims**



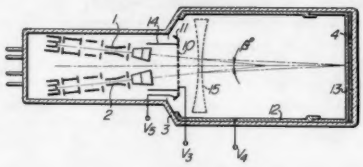
A plurality of flat coded dynode members are sandwiched between an electron emitting cathode in the form of a flat plate and a flat target plate. Each dynode member has a plurality of apertures formed therein which are aligned with corresponding apertures on all the other dynodes to form an electron beam channel. The dynodes further each have a pair of separate conductive portions thereon arranged in a predetermined finger pattern, the finest of such finger patterns defining an elemental scanning area of the target plate. Each of such basic resolution elements is formed by means of a channel for each of a plurality of scanning beams. A modulation grid having apertures therein corresponding to the apertures on the dynodes and aligned therewith is placed between the cathode and target and is used to control the energization of the beams. A dynode having one of the finest finger patterns thereon has such finger patterns arranged so that each basic scanning element has a single aperture for each of the separate scanning beams, thereby enabling simultaneous scanning over the entire target area for the separate beams.

3,708,714

ELECTROSTATIC DEFLECTION TYPE CATHODE-RAY TUBE WITH A PLURALITY OF ELECTRON GUNS

Masamichi Kimura, Takatsuki, Japan, assignor to Matsushita Electronics Corporation, Osaka, Japan

Filed July 17, 1970, Ser. No. 55,678
Claims priority, application Japan, July 23, 1969, 44/59562
Int. Cl. H01j *29/50*
U.S. Cl. 315—13 C **4 Claims**



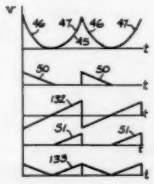
An electrostatic deflection type cathode-ray tube wherein a mesh electrode is disposed between a phosphor screen and at least two electron guns juxtaposed with their axes inclined with respect to the axis of the tube, and wherein a post-accelerating electrode system for the formation of a divergent electron lens is provided by means of an internal conductive film deposited on the inner wall surface of the funnel portion of the bulb of the tube and the mesh electrode, whereby there is eliminated the inconvenience of any occurrence of geometry distortion of raster due to the inclined disposition of the electron guns with respect to the axis of said tube.

3,708,715

CONVERGENCE APPARATUS UTILIZING INDEPENDENTLY ADJUSTABLE HALF-PERIOD TRIANGULAR WAVEFORMS

Dong Woo Rhee, Williamsville, N.Y., assignor to GTE Sylvania Incorporated, Seneca Falls, N.Y.

Filed April 21, 1971, Ser. No. 135,991
Int. Cl. H01j *29/54*
U.S. Cl. 315—13 C **18 Claims**



A convergence system with minimized control interaction is disclosed. A signal with a parabolic waveform is generated and summed with a signal with a triangular waveform to provide a convergence signal. The triangular waveform has independently adjustable half-periods so that independent top and bottom or right and left adjustment is obtained.

3,708,716

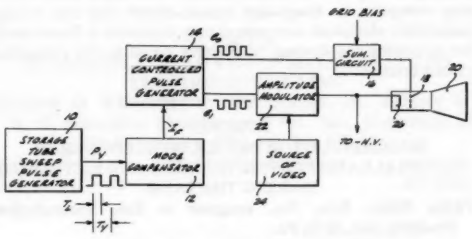
CATHODE RAY BEAM CURRENT CONTROL SYSTEM UTILIZING VARIABLE DUTY CYCLE AND AMPLITUDE MODULATION

Ted W. Berwin, Los Angeles, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Oct. 6, 1969, Ser. No. 868,665
Int. Cl. H01j *29/52*
U.S. Cl. 315—30 **10 Claims**

The cathode ray beam current in a storage tube, for example, is made accurately controllable over at least a 10,000 to 1

range, despite sweep speed variations and/or different modes of operation, by generating two out of phase pulse trains wherein the pulse duty cycles are made responsive to the modes of operation and/or sweep speed variations. One of the pulse trains is then amplitude modulated by the video. This pulse train is applied to the cathode. The unmodulated pulse



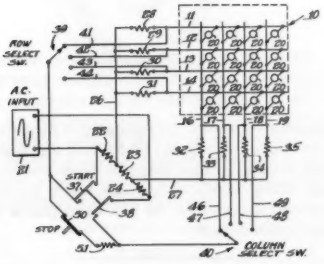
train is applied to the control grid of the storage tube. Thereby compensation is provided in the cathode ray beam current for mode and/or sweep speed variations which may otherwise adversely effect the information being displayed and also for enabling an accurate display of the information contained in the video signals.

3,708,717

ELECTROLUMINESCENT ARRAY AND METHOD AND APPARATUS FOR CONTROLLING DISCRETE POINTS ON THE ARRAY

Gordon R. Fleming, Pontiac, Mich., assignor to Energy Conversion Devices, Inc., Troy, Mich.

Filed May 16, 1969, Ser. No. 825,153
Int. Cl. H05b *33/00*; **G09f** *13/22*
U.S. Cl. 315—169 TV **24 Claims**



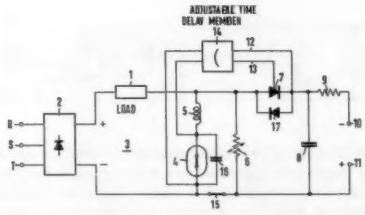
An electroluminescent array and a method and circuit arrangements for energizing discrete elemental points on the electroluminescent array. The electroluminescent array may include a predetermined number of row circuit lines and a predetermined number of column circuit lines arranged in a cross-grid X–Y pattern to form a circuit juncture at each crossing of the column and row circuit lines, and a threshold operated electroluminescent circuit is connected at each of the junctures. Each threshold operated electroluminescent circuit most advantageously comprises a bidirectional threshold switch having a time delay characteristic, an electroluminescent element, and a resistor which may be a discrete element or formed by the circuit resistance. A power supply and selector control circuit means are connected to the electroluminescent array such that operating potential is continuously applied to the array but no electroluminescent circuit is energized until a start pulse of predetermined configurations is applied to a selected row circuit line and/or to a selected column circuit line and only then is the electroluminescent circuit at the juncture of the selected row and selected column circuit lines energized and remains energized while the other electroluminescent circuits of the array, if not selected, remain deenergized. The method and circuit arrangements together with the electroluminescent circuits used in the array provide means for applying uniform voltage to each and every electroluminescent element therein regardless of differences of threshold voltage value or inherent time delay of the threshold switch devices thus providing uniform lumination of the discrete electroluminescent elements. An energized electroluminescent circuit continues to be energized until a stop pulse is applied to selected row and column circuit lines and then only the electroluminescent circuit at the juncture thereof is de-energized, and other previously energized electroluminescent circuits remain in the energized state.

3,708,718

ELECTRICAL SWITCHING DEVICE

Manfred Hoffmann, Erlangen; Kurt Fork, Mulheim-Ruhr, and Peter Schulze, Erlangen, all of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed Oct. 13, 1970, Ser. No. 80,329
Claims priority, application Germany, May 15, 1970, P 20 23 872.6
Int. Cl. H01h *9/30, 33/04*
U.S. Cl. 317—11 B **6 Claims**



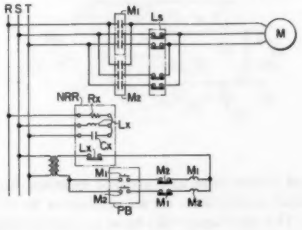
An electronic switch is connected in series circuit arrangement with a capacitor. The series circuit arrangement is connected in parallel with a vacuum switch. A control circuit coupled between the vacuum switch and the electronic switch controls the electronic switch in conductive condition in a manner whereby the electronic switch is switched to its conductive condition immediately after the contacts of the vacuum switch are opened thereby providing a current path from the capacitor to the vacuum switch via the electronic switch.

3,708,719

SAFETY DEVICE IN MOTOR WINCH

Shogo Ishikawa, Kawasaki, Japan, assignor to Kabushiki Kaisha Kito, Kanagawa-ken, Japan

Filed June 21, 1971, Ser. No. 154,836
Claims priority, application Japan, June 23, 1970, 45/54038
Int. Cl. H02h *7/09*
U.S. Cl. 317—13 R **3 Claims**



A safety device includes a resistance, a condenser and a relay winding which are star-connected across a three-phase

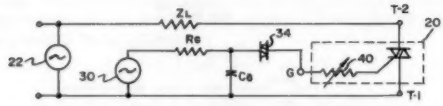
source of AC potential providing the supply potential for a three-phase motor which is controlled, as to operation in the normal and reverse directions, by a three-phase magnetic contactor connected to the motor by forward or normal and reverse end limit switches. The safety device further includes a normally closed contact which is opened upon energization of the relay winding, and this contact is connected in series in the control circuit of the electromagnetic contactor. This control circuit is connected to the same single phase as is the series connection of the condenser and the relay winding. If the three-phase source of AC potential does not have the proper phase sequence, or if a single phase is inoperative, the relay winding is sufficiently energized to open the normally closed contact and thus interrupt energization of the magnetic contactor with resultant de-energization of the three-phase motor driving the winch.

3,708,720

SEMICONDUCTOR THERMAL PROTECTION

John A. Whitney, Allen, and Richard E. Woods, Markle, both of Ind., assignors to Franklin Electric Co., Inc., Bluffton, Ind.

Filed Jan. 2, 1973, Ser. No. 152,622
Int. Cl. H02h *5/04*
U.S. Cl. 317—13 C **17 Claims**



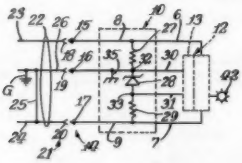
To prevent excessive semiconductor junction temperatures, thermally responsive impedances are mounted in heat transfer contact with the semiconductor device. Various combinations of impedances including positive and negative temperature coefficient thermistors, semiconductor diodes, transistors and thyristors are located in electrical series or shunt circuits which disable current flow through an adjacent semiconductor junction when the temperature thereof exceeds predetermined values. Load circuits in series with a thermally protected semiconductor device are protected from excessive load currents which might damage the load and/or the semiconductor device.

3,708,721

ELECTRICAL CONNECTION AND GROUND MONITOR

Roque D. Marcade, Stevensville, and Donald E. Janke, Benton Harbor, both of Mich., assignors to Whirlpool Corporation, Benton Harbor, Mich.

Filed Feb. 29, 1972, Ser. No. 230,348
Int. Cl. H02h *3/14*
U.S. Cl. 317—18 B **14 Claims**



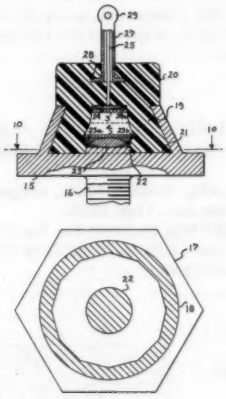
An electrical connection and ground monitor for ensuring proper electrical connection of an appliance to a grounded power supply. The appliance may have a control responsive to the selective provision of a logic 0 or a logic 1 input signal thereto for causing the appliance to be selectively correspondingly in "On" or "Off" operational conditions. The electrical connection and ground monitor may include an electrical component means for developing a predetermined voltage in response to a potential of one polarity thereacross and substantially no voltage in response to a voltage of opposite polarity thereacross. The signal may be developed across the voltage responsive electrical component for controlling the operation of the device. The appliance control may comprise an integrated circuit means and the voltage responsive electrical component may comprise a Zener diode for providing the desired logic input signal to the integrated circuit control.

3,708,722

SEMICONDUCTOR DEVICE WITH SOLDERED TERMINALS AND PLASTIC HOUSING AND METHOD OF MAKING THE SAME

Philip Wiles, Erie, Pa., assignor to Erie Technological Products, Inc., Erie, Pa.

Filed Dec. 18, 1970, Ser. No. 99,541
Int. Cl. H01l *3/00, 5/00*
U.S. Cl. 317—234 R **5 Claims**



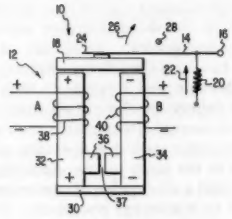
A semiconductor device encapsulated in insulating material which is interlocked to a flange of dovetail shape in axial cross section and of non circular shape in diametral cross section, and having ohmic contacts to leads made by solder fillets between convex surfaces on the leads and planar surfaces on the semiconductor device.

3,708,723

LOW POWER MAGNETIC CIRCUIT BREAKER

John R. Shand, and William H. Reid, both of Easton, Md., assignors to Airpax Electronics Incorporated, Cambridge, Md.

Filed March 5, 1971, Ser. No. 121,409
Int. Cl. H01j *9/46;* **H01h** *9/00;* **H01f** *7/00*
U.S. Cl. 317—31 **5 Claims**



Disclosed is a circuit breaker which may be operated on relatively low power. It comprises a polarized relay having a

spring-biased armature rotatable to trip a conventional circuit breaker toggle. The armature is released by the flux from a low power coil bucking out the polarizing flux from a permanent magnet. The breaker is disclosed in overvoltage protection and/or undervoltage protections circuits, as well as in a ground fault interruption circuit, and may be used with a conventional breaker overcurrent coil and toggle trip assembly.

3,708,724

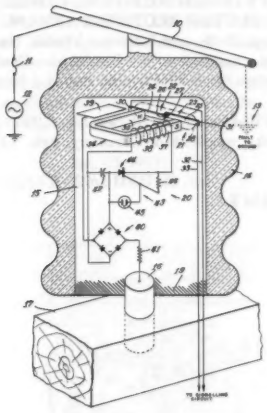
SIGNALLING SYSTEM RESPONSIVE TO FAULT ON ELECTRIC POWER LINE

Edmund O. Schweitzer, Jr., Northbrook, Ill., assignor to E. O. Schweitzer Manufacturing Co., Inc., Mundelein, Ill.

Filed March 31, 1972, Ser. No. 239,930

Int. Cl. G01r *13/00*

U.S. Cl. 317—22 **16 Claims**



One or more reed switches have contacts that are held closed on normal energization or current flow in an alternating current conductor and are opened on flow of alternating current in the conductor above a predetermined value. The switch or switches may be potted in a cavity in an insulator supporting the conductor. A rectifier energized from the conductor charges a capacitor the discharge from which through winding means effects closure of the contacts.

3,708,725

CONTROL CENTER WITH SHELF SUPPORTED REMOVABLE CABINETS

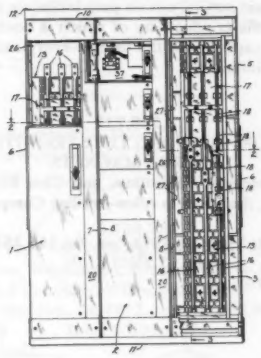
Lawrence A. Burton, Oconomowoc, and George W. Hennings, Milwaukee, both of Wis., assignors to Allen-Bradley Company, Milwaukee, Wis.

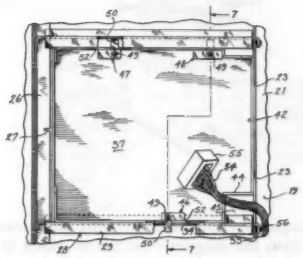
Filed Jan. 6, 1971, Ser. No. 104,376

Int. Cl. H02b *1/06*

U.S. Cl. 317—120 **6 Claims**

An electrical control center is shown made up of a set of three vertical byas that each house a number of individual electrical control assembly cabinets that are tiered one above the other. There is a separate door for each assembly cabinet, and each bay also has a wiring trough along its front for feeding wires to the assemblies which is enclosed by a separate wiring trough door. A wall-like insulating partition in each bay extends vertically and sidewardly across the interior of the bay in a plane spaced behind, but paralleling the front of the control center, and each such partition supports main power distributing buses on its rear face and a set of three vertically disposed feeder buses at its front face. To the front of each insulating partition there are a number of shelves which may be arranged at desired levels, and each shelf supports a control assembly cabinet which includes lower and upper latches for fixing the cabinet in position. Each cabinet has a recess along its lower right side for the full depth of the cabinet which is adjacent to the vertical wiring trough of the associated bay, so





that as the cabinet is slid into and out of its position the recess may slide past wires and terminals extending out from the wiring trough.

3,708,726

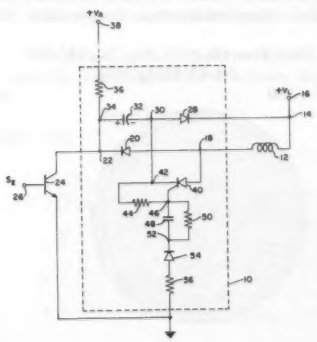
INDUCTOR DRIVE MEANS

John M. Puvogel, West Alexandria, Ohio, assignor to The National Cash Register Company, Dayton, Ohio

Filed Aug. 2, 1971, Ser. No. 168,052

Int. Cl. H01h *47/22*

U.S. Cl. 317—148.5 B **10 Claims**



A circuit providing a means of transferring and storing the energy from the collapsing field of a deenergized inductive

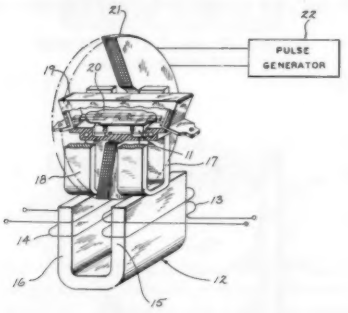
load to a capacitor, and subsequently delivering this energy back to the inductive load to aid in its re-energization. A first circuit path is provided for transferring the energy from the inductive load to the capacitor, and a second circuit path is provided for transferring the energy from the capacitor to the inductive load, said second circuit path including a signal translating device, the conductivity of which is controlled by the charge on the capacitor at the time re-energization of the inductive load is initiated.

3,708,727

METHOD FOR ADJUSTING THE STRENGTH OF HIGH ENERGY MAGNETS

Wayne H. Wielebski, Milwaukee, and Glen Ray, Big Bend, both of Wis., assignors to Allen-Bradley Company, Milwaukee, Wis.

Filed July 22, 1971, Ser. No. 165,254
Int. Cl. H01f *13/00*
U.S. Cl. 317—157.5 **11 Claims**



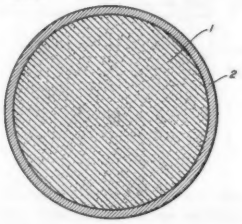
A high capability, oriented, ceramic permanent magnet is assembled into the magnetic circuit in which is intended to function, and its strength is reduced by demagnetization until it provides the desired flux density for the circuit. This demagnetization is accomplished by encircling the magnet with a demagnetizing coil and applying current pulses to the coil. Control over the degree of demagnetization is achieved by orienting the demagnetization field perpendicular to the direction of polarization of the magnet.

3,708,728

ELECTROLYTIC CAPACITOR ELECTRODE COMPRISING SEMICONDUCTOR CORE WITH FILM-FORMING METAL COATING

Henley Frank Sterling, Ware, and Eric Langley Bush, Matching Green, nr. Harlow, both of England, assignors to International Standard Electric Corporation, New York, N.Y.

Filed June 10, 1971, Ser. No. 151,903
Int. Cl. H01g *9/04*
U.S. Cl. 317—230 **3 Claims**



This invention relates to an electrode for an electrolytic capacitor comprising a compacted porous semiconductor body of valve metal coated particles.

3,708,729

SOLID ELECTROLYTE FILMS AND DEVICES CONTAINING SAME

Carl Berger, Santa Ana, Calif., assignor to Unican Security Systems, Ltd., Montreal, Quebec, Canada

Continuation-in-part of Ser. No. 823,478, May 9, 1969, abandoned. This application Dec. 10, 1971, Ser. No. 206,891
Int. Cl. H01g *9/02*
U.S. Cl. 317—230 **14 Claims**

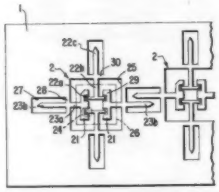
Solid electrolyte films comprising a major portion of a solid electrolyte such as Ag_2SI and a minor portion of a film forming constituent such as polyphenylene oxide, which are employed in electrolytic devices such as battery cells or colulometric devices such as counters or timers. The flexible films of this invention represent a substantial advance in applicability, size and cost compared to presently available solid electrolytes.

3,708,730

CONTACT STRUCTURE FOR MULTIPLE WAFER SEMICONDUCTOR RECTIFIER ARRANGEMENT

Winfried Schierz, Roth, and Liboslav Vladik, Nurnberg, both of Germany, assignors to Semikron Gesellschaft fur Gleichrichterbau und Elektronik m.b.H., Nurnberg, Germany

Filed Feb. 5, 1970, Ser. No. 8,997
Claims priority, application Germany, Feb. 13, 1969, P 19 07 075.8
Int. Cl. H01l *5/02*
U.S. Cl. 317—234 R **10 Claims**



A semiconductor rectifier device, for use particularly with miniature devices, wherein two or more semiconductor diode wafers are initially connected to the conductor portions of the planar circuit by means of clamp-type mountings and are then simultaneously permanently connected to the conductors. The devices are then embedded in an insulating material with the conductor portions extending out of the housing formed by the insulating material in a predetermined direction and orientation. The portions of the circuit constituting the clamp-type mountings and the conductor portions are formed by dividing a strip of conductive sheet material into a plurality of sections having a certain areal expanse which form a geometric structure. Each of the structures includes, in interlocked fashion, the portions of the circuit comprising the clamp-type mountings and the current conductors. The current conductor portions of the circuit extend from the center of the structure parallel to one another and/or at a desired angle with respect to one another toward the edge of the structure and function as supporting bars between the central portion of the structure and the strip of conductive sheet material.

3,708,731

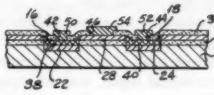
GALLIUM ARSENIDE INTEGRATED CIRCUIT

Bruce A. McDonald, Stamford, Conn., assignor to Unisem Corporation, Trevose, Pa.

Division of Ser. No. 657,703, Aug. 1, 1967, Pat. No. 3,541,678. This application Feb. 24, 1970, Ser. No. 17,001
Int. Cl. H01l *11/14*
U.S. Cl. 317—235 R **4 Claims**

A gallium arsenide integrated circuit and method of making the same in which a heat-resistant protective mask is formed

over a gallium arsenide layer extending through a thin dielectric film diffusion opening into contact with a doped silicon substrate. This structure is heated to diffuse material upwardly



from the substrate into the gallium arsenide layer. Following the diffusion, openings are formed in the mask and suitable contacts are applied to the resultant structure.

3,708,732

COMPOUND ELECTRICAL CIRCUIT UNIT COMPRISING A MAIN POWER TYPE THYRISTOR AND AUXILIARY CONTROL SEMICONDUCTOR ELEMENTS STRUCTURALLY AND ELECTRICALLY UNITED TO FORM A COMPACT ASSEMBLY

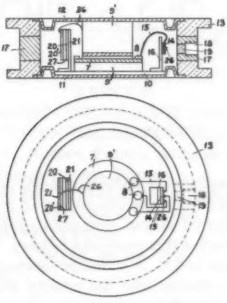
Werner Faust, Wettingen, Switzerland, assignor to Aktiengesellschaft Brown, Boveri & Cie, Baden, Switzerland

Continuation of Ser. No. 721,298, April 15, 1968, abandoned. This application Nov. 10, 1970, Ser. No. 88,468

Claims priority, application Switzerland, Aug. 3, 1967, 10980/67

Int. Cl. H01l *15/00*

U.S. Cl. 317—235 R **4 Claims**



A compound electrical circuit unit comprises a main, high power type thyristor and auxiliary low power control semiconductor elements structurally and electrically united to form a compact assembly which is enclosed within a housing. At least some of the auxiliary semiconductor elements such as low power thyristors are established directly on the disc of semiconductor material which forms the main power thyristor, and light responsive elements, such as light sensitive thyristors, are connected to, and control the auxiliary thyristors, the light-sensitive thyristors being exposed to light through a window in the housing.

3,708,733

METHOD OF IMPROVING THE SURFACE ACTIVITY OF ELECTRICALLY CONDUCTIVE CARRIER STRIPS

Holger Steen Bille, Hamfelde, Germany, assignor to Softal Elektronik G.m.b.H., Hamburg, Germany

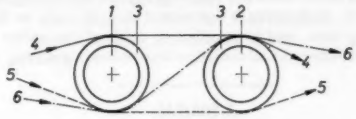
Filed Feb. 25, 1971, Ser. No. 118,832

Claims priority, application Germany, March 26, 1970, P 20 14 646.7

Int. Cl. H01t *19/00*

U.S. Cl. 317—262 A **5 Claims**

A method of improving the surface activity of electrically conductive carrier strips, to enhance their bonding properties. The surface of the strip is subjected to a high frequency and high gradient alternating electrical field formed between two electrodes. The carrier strip which forms one electrode is conducted over and in direct contact with a roller electrode which forms the other electrode and the surface of which comprises



a solid dielectric material. The difficulties which occur when an air gap is present between the strip and the electrode are thereby avoided.

3,708,734

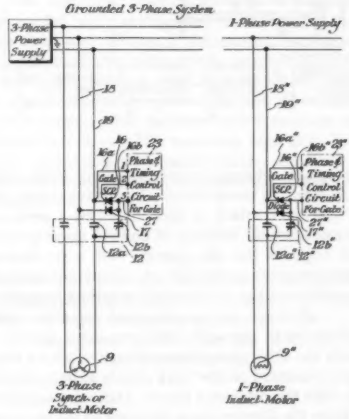
ELECTRIC MOTOR BRAKING APPARATUS

Jean Max Rowe, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Feb. 14, 1972, Ser. No. 225,901

Int. Cl. H02p *3/20*

U.S. Cl. 318—212 **7 Claims**



Apparatus for braking an alternating current motor of the induction or synchronous three-phase or single-phase type wherein two power leads are tapped to provide unidirectional braking electric current to a preselected motor winding.

3,708,735

AIRCRAFT FLIGHT CONTROL SYSTEMS

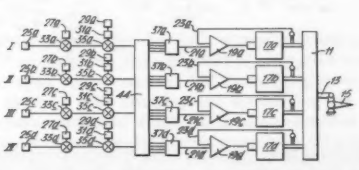
Richard Kenneth Barltrop, Lewisham, London, England, assignor to Elliott Brothers (London) Limited, London, England

Filed Sept. 3, 1970, Ser. No. 69,207

Claims priority, application Great Britain, Sept. 3, 1969, 43,587/69

Int. Cl. G05b *9/02*

U.S. Cl. 318—564 **9 Claims**



In a signal transmission system for use, for example, in an automatic flight control system for an aircraft, signals from air

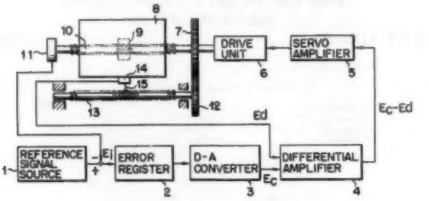
data sensors and other sensing devices are fed over individual transmission lanes to signal consolidation devices such as voters, each of which develops an output signal which is dependent upon the signals on all of the lanes. To avoid feeding to all of the other lanes any spurious signals which may appear on any lane, each voter is connected directly only to its corresponding lane, and is coupled to each of the other lanes through a unidirectional radiation transmission system.

3,708,736

CONTROL SYSTEM FOR CORRECTING ERRORS IN THE POSITION OF A WORK ARTICLE MAKING A LINEAR MOTION BY MEANS OF A DRIVE SCREW

Naomi Hoshina, Yokohama, and Etsuji Suzuki, Kawasaki, both of Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

Filed July 9, 1971, Ser. No. 161,128
Claims priority, application Japan, July 10, 1970, 45/59848
Int. Cl. G05d *23/275*
U.S. Cl. 318—632 **5 Claims**



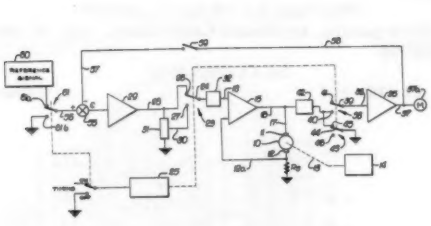
A control system wherein a work article or load, such as a work table, is made to travel linearly by a drive screw; and the position of said work article is determined by a servo system including comparing an amount of control corresponding to the rotation angle of the drive screw with a predetermined value of input supplied to the system. There are detected errors in the position of the work article resulting from the drive screw by a reference screw disposed parallel with the travelling direction of the work article so as to operate interlockingly with the drive screw in combination with a displacement detector mounted on the work article so as to operate interlockingly with the reference screw. There are supplied output signals from the displacement detector to the servo system to correct errors in the position of the work article.

3,708,737

ELECTRIC MOTOR SPEED SENSING

Harold Johnson, Sherman Oaks, Calif., assignor to California Data Corporation, Van Nuys, Calif.

Filed May 19, 1971, Ser. No. 144,901
Int. Cl. G05b *21/02*
U.S. Cl. 318—636 **14 Claims**



Electrical motor speed sensing circuitry comprises:

a. a current generator remaining electrically connected in current supplying relation with the motor, the generator having a control input,

b. input control means to alternate the generator input between a first signal level during first time intervals in which the motor is engergized by the generator to drive a load, and a second signal level during second time intervals in which the motor coasts, and

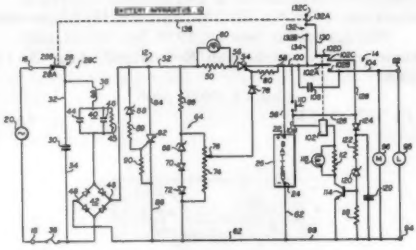
c. sensing means operable to sample values of the motor back EMF during said second intervals. For servo operation, the input means may include a summing junction having a reference signal input and an input for a feedback signal derived in response to operation of the sensing means.

3,708,738

BATTERY CHARGING AND DISCHARGING APPARATUS

James J. Crawford, and James Frezzolini, both of Ringwood, N.J., assignors to Frezzolini Electronics Inc., Hawthorne, N.J.

Filed Dec. 22, 1970, Ser. No. 100,593
Int. Cl. H02j *7/10*
U.S. Cl. 320—9 **11 Claims**



The apparatus includes a battery charger having a pair of input terminals adapted to be connected to an AC source of potential and a pair of output terminals adapted to be connected to the respective terminals of a battery. A rectifier converts the AC energy to DC. A series connected SCR is operable to connect the source with the battery when the battery potential is below a predetermined value. A reactance is provided to lower the source potential and to obtain substantially constant current for charging purposes. A shunt connected SCR is provided to limit the potential applied to the series SCR when the battery is charged to protect the battery and the series connected SCR.

The apparatus further includes a discharger which is operable to disconnect a load from the battery when the battery potential drops to a preselected value, thereby to protect the battery from completely discharging.

3,708,739

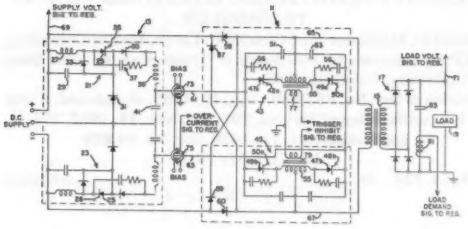
REGULATED ELECTRICAL INVERTER SYSTEM

Thomas P. Kohler, Baldwinsville; Marvin W. Smith, and Charles W. Van Marter, both of Syracuse, all of N.Y., assignors to General Electric Company, Syracuse, N.Y.

Filed Nov. 24, 1971, Ser. No. 201,757
Int. Cl. H02m *7/48*
U.S. Cl. 321—21 **10 Claims**

A regulated electrical inverter system particularly adapted for power supply to pulsed loads and other sharply varying loads requiring close regulation of input voltage. The system comprises dual constant frequency inverters having their outputs summed and their relative phases oppositely adjusted so as to hold the summed output to the load at the regulated value. These phase controlled inverters receive their power input through a D-C transformation circuit including a pair of D-C choppers operating under fixed timed ratio control at the

same frequency as the inverters, and the inverters have their outputs connected through a diode bridge back to the input of the D-C transformation circuit for purposes of clamping the inverter output voltage and maintaining inverter loading when the actual load becomes reactive. Automatic regulation of in-



verter power output is provided by a closed loop control system which maintains the output within close limits and enables vary fast response to load switching, while also providing a time averaging capability which compensates for long term load variations.

3,708,740

DEVICE FOR PRODUCING A LARGE DIRECT-CURRENT POTENTIAL DIFFERENCE

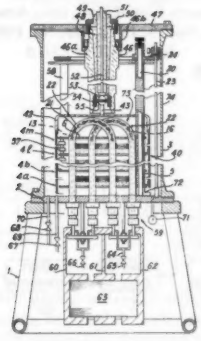
Alexandre Pierson, Biviers, France, assignor to Commissariat A l'Energie Atomique, Paris, France

Filed Jan. 4, 1972, Ser. No. 215,381

Claims priority, application France, Jan. 15, 1971, 7101356; Dec. 3, 1971, 7143497

Int. Cl. H02m *7/00*

U.S. Cl. 321—8 R **23 Claims**



The device comprises at least one conductive rod forming a transfer winding supplied from an alternating-current source and cells arranged in tiers along each rod and each consisting of a closet magnetic-circuit body surrounding each rod, a secondary winding inductively coupled to the transfer winding and a rectifier. Each cell constitutes a module comprising a support plate having a set of aligned holes through which the conductive rod or rods are passed.

3,708,741

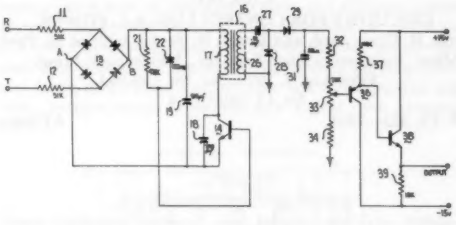
D.C. TO D.C. CONVERTER FOR CONNECTION ACROSS TELEPHONE LINES

Norris C. Hekimian, Rockville, Md., assignor to Hekimian Laboratories, Inc., Rockville, Md.

Filed June 21, 1971, Ser. No. 154,726

Int. Cl. H02m *1/00*; **H03d** *1/16*

U.S. Cl. 321—15 **9 Claims**



D.C. supervisory signals control tones and audio signals appearing across a pair of balanced floating telephone lines are converted to permit processing by a single-ended grounded system. The converter circuit includes a high-impedance diode bridge full wave rectifier connected across the floating telephone lines and feeding a self-excited oscillator with an output signal amplitude substantially proportional to the D.C. voltage across the floating lines. The output signals from the rectifier and oscillator are passed through an isolation transformer to a single-ended detector which restores the supervisory signal D.C. level. The relatively high D.C. level of the supervisory signal acts to forward bias the rectifier and detector to pass the relatively low level audio signal and touch tones without distortion.

3,708,742

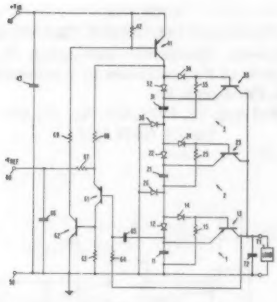
HIGH DC TO LOW DC VOLTAGE CONVERTER

John B. Gunn, Mount Kisco, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed June 30, 1971, Ser. No. 158,173

Int. Cl. H02m *7/00*

U.S. Cl. 321—15 **21 Claims**



Transformerless high DC to low DC voltage conversion is achieved by alternately charging a plurality of capacitors in series from the input voltage source, and discharging them in parallel into the load. The charging and discharging are effected by transistor switches, which are in turn controlled by the voltage across one of the plurality of capacitors. Charging stops, and discharging begins, when this voltage rises above a first predetermined value; discharging stops, and charging begins, when this voltage falls below a second, lower, predetermined value. During charging, voltage across the load

is maintained by a permanently connected reservoir capacitor. The difference between the predetermined voltage values, and hence the ripple on the output voltage, is preselected by certain circuit constants, whereas the mean of the two values is controlled by comparing the DC component of the output voltage with a reference value, so as to maintain the DC load voltage constant despite variations in load current.

3,708,743

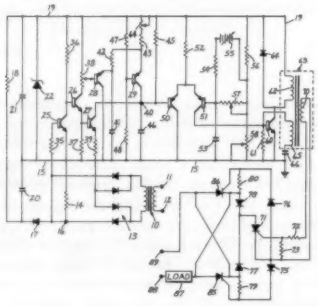
CIRCUITRY FOR CONTROLLING A.C. POWER

Orrin H. Grangaard, and Ernest R. Peake, both of St. Paul, Minn., assignors to Stage-Brite Inc., Minneapolis, Minn.

Filed Aug. 4, 1971, Ser. No. 168,941

Int. Cl. G05f *1/44*

U.S. Cl. 323—22SC **6 Claims**



A switching circuit sensitive to the 180° separated zero crossing points in a pulsating D.C. signal from an unfiltered full wave rectifier, which switching circuit resets a reference generator at each zero crossing point. The reference generator produces a three-part signal, each part of which can be varied to provide linear light, square-law light or linear voltage relative to a dimmer control. The three-part signal is compared to a variable D.C. voltage supplied by the dimmer control and the comparison signal is utilized to trigger a thyristor drive circuit. Two power thyristors operate alternately and are triggered by means of a third thyristor connected in a diode bridge circuit so that current therethrough will always flow into the gate of one of the power thyristors.

3,708,744

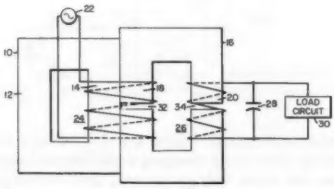
REGULATING AND FILTERING TRANSFORMER

Donald S. Stephens, Sharpsville, and James M. Banic, Jr., Greenville, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Aug. 18, 1971, Ser. No. 172,683

Int. Cl. G05f *1/38*

U.S. Cl. 323—60 **7 Claims**



Transformer for providing a regulated and filtered output voltage. Input voltage is applied to an input winding which is wound around two magnetic cores. One magnetic core saturates for part of each half-cycle of the induced alternating flux during normal operation. The other magnetic core does not saturate during normal operation and includes air gaps in the legs thereof. An output winding is positioned around the nonsaturating core and connected in parallel with a capacitor to form an output tank circuit resonant at the operating frequency of the transformer.

3,708,745

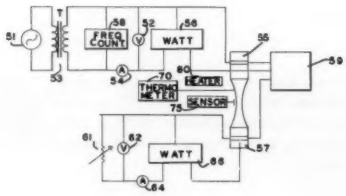
SYSTEM FOR MEASURING OUTPUT POWER OF A RESONANT PIEZOELECTRIC ELECTROMECHANICAL TRANSDUCER

Robert C. McMaster, and Charles C. Libby, both of Columbus, Ohio, assignors to The Board of Trustees of the Ohio State University, Columbus, Ohio

Division of Ser. No. 852,980, Aug. 19, 1969, abandoned, which is a continuation of Ser. No. 508,804, Nov. 19, 1965. This application Nov. 12, 1970, Ser. No. 89,059

Int. Cl. G01r *29/22*

U.S. Cl. 324—56 **6 Claims**



A measuring system utilizing a resonant piezoelectric electromechanical transducer of the horn type having connected to the tip of the horn a transmission line whose length is in multiples of one-half wavelength. A transducer whose output capabilities are to be measured is connected to the other end of the transmission line and therefore excited mechanically. The electrical signal derived therefrom is indicative of its output parameters.

3,708,746

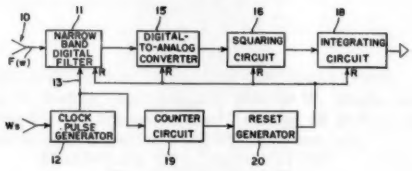
SYSTEM FOR SPECTRUM ANALYSIS INCLUDING DIGITAL FILTER WITH VARIABLE SAMPLING RATE

Richard M. Willett, Boone, Iowa, assignor to Iowa State University Research Foundation, Inc., Ames, Iowa

Filed Nov. 8, 1971, Ser. No. 196,675

Int. Cl. G01r *23/16*

U.S. Cl. 324—77 D **5 Claims**

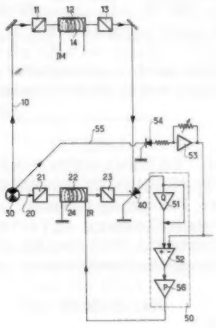


A system for analyzing the frequency spectrum of an input signal includes a digital filter, the center frequency of which is varied by changing the sampling rate. The output signal of the digital filter is squared in a detector circuit; and the output signal of the detector circuit is fed to an integrator circuit. The integration time is varied inversely proportional to the center frequency of the digital filter to obtain a signal representative of the power spectrum of the input signal.

3,708,747
OPTICAL CURRENT TRANSFORMER

Gilbert Lesueur, Aix-Les-Bains, France, assignor to Alsthom-Savoisienne, Saint-Owen, France

Filed Oct. 22, 1971, Ser. No. 191,664
Claims priority, application France, Oct. 23, 1970, 7038389
Int. Cl. G02f 1/13
U.S. Cl. 324—96 4 Claims

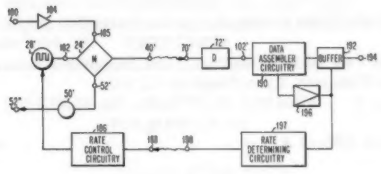


An optical current transformer in which two light beams coming from the same source successively pass through: (1) a first polarizer, a first material having a magnetic rotational power influenced by the electrical current to be measured and a first analyzer, to end up on a photoelectric detector; and (2) a second polarizer, a second material having a magnetic rotational power influenced by a measuring electrical current and a second analyzer, to end up on the same photoelectric detector. The measuring current is dependent on the detector for maintaining a constant flux on the latter. The angle between the polarization planes of the polarizers and the analyzers of each pair is 45°.

3,708,748
RETROSPECTIVE PULSE MODULATION AND APPARATUS THEREFOR

Ernie George Nassimbene, San Jose, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed April 27, 1970, Ser. No. 31,959
Int. Cl. H04b 1/00
U.S. Cl. 325—38 23 Claims

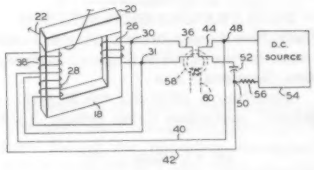


Digital data in self-timing reference is free from error due to irregular data spacing because of variations in speed and/or direction of scan in manual or machine applications with a pulse modulation of retrospective nature. Initially reference data manifestations are established and thereafter digital data are established partly on the basis of preceding manifestations of the data. In a binary data translating system, for example, a pair of reference pulses are spaced apart by a given interval. A binary unit is thereafter manifested by a pulse following at the same or similar interval and a binary zero is manifested by a pulse following at a differing interval. Each manifestation of a binary number thereafter depends on the interval between preceding pulses. A principle advantage of retrospective pulse modulation lies in demodulation. Large variations in the spacing and relatively larger variations in the scanning speed are accommodated readily. Magnetic tape and like records can not only be addressed at conventional high speeds in searching and at conventional low speeds later used in reproducing but, also can be searched continuously as the change is made between those speeds. Adaptive rate communications are particularly enhanced by the principle. Optical scanning of bar codes is improved by differing the spacing of uniform width bars or with bars of differing widths and differing spacing. These arrangements are applicable to railroad car and like object identifying, label data processing, human identification, card data processing, graphical display data probing systems and many other uses. Synchronous and asynchronous capability permits input to almost any digital data processing system.

3,708,749
CURRENT TRANSFORMER

Glenn Bateman, Portland, and John A. Roberts, Hillsboro, both of Oreg., assignors to Tektronix, Inc., Beaverton, Oreg.

Filed March 18, 1971, Ser. No. 125,494
Int. Cl. G01r 1/22; G05f 7/10
U.S. Cl. 324—127 14 Claims

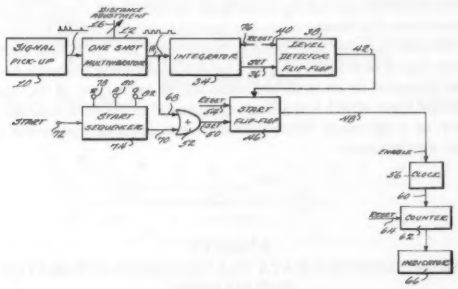


A current transformer in the form of a probe includes a removable bucking winding for canceling core flux attributable to the D.C. component of current in an input conductor. The bucking winding is A.C. coupled to the transformer's output circuit and contributes a portion of the output signal.

3,708,750
ELAPSED TIME INDICATOR

Robert M. Bucks, Norristown, and Frederick M. Ayars, Lansdale, both of Pa., assignors to Autonumerics Corporation, Lake Park, Fla.

Continuation-in-part of Ser. No. 872,226, Oct. 29, 1969, abandoned. This application Aug. 20, 1970, Ser. No. 65,589
Int. Cl. G01p 3/42
U.S. Cl. 324—178 6 Claims



An electronic apparatus for measuring the time required for a vehicle to travel a predetermined distance such as a quarter mile. The exemplary embodiment described comprises pulse generating means for producing a pulse for each increment of distance traveled in combination with an integrating means for

accumulating such pulses and producing a stop count signal when the output of the integrating means reaches a predetermined level. By adjusting a duty cycle of the individual pulses input to the integrating means, the predetermined point at which the stop count output is produced may be made to correspond to a desired predetermined value of traveled distance. Clock pulses are counted by a digital counter from a time determined by either manual or automatic start means until said stop count signal is produced at which time the counter is adapted to hold its contents until being reset. An indicator is also associated with the counter for visually displaying the contents of the counter indicating the elapsed time required for the vehicle to travel the predetermined distance as determined by the pulse width adjustment.

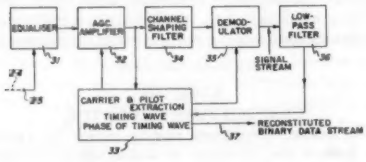
ERRATUM

For Class 325—38 see:
Patent No. 3,708,748

3,708,751
DATA TRANSMISSION SYSTEMS

Arthur T. Starr, New Barnet; Brian C. Sewell, Teddington, and Roy F. Lewis, Isleworth, all of England, assignors to Xerox Corporation, Stamford, Conn.

Filed Nov. 6, 1970, Ser. No. 87,545
Claims priority, application Great Britain, April 21, 1970, 19,038/70
Int. Cl. H04b *1/100*
U.S. Cl. 325—38 B **12 Claims**



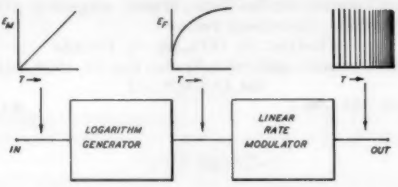
A transmitter for a data transmission system, the transmitter including modulating apparatus intended to receive an input signal in the form of a binary data stream of pulse form signals at a predetermined repetition rate to transmit in response thereto a corresponding modulated carrier wave output which represents the binary data, the modulating apparatus being so arranged that the said output comprises, for each said pulse form signal and according to a prearranged code, either a normal sinusoid or an inverted sinusoid, in each case of the said carrier wave which has a frequency equal to the said repetition rate, or a signalless interval of duration equal to the period of that carrier wave.

3,708,752
ASYNCHRONOUS DATA TRANSMISSION APPARATUS AND METHOD

Harry Fein, 832 Quarter Mile Road, Orange, Conn.

Continuation of Ser. No. 568,008, July 26, 1966, abandoned.
This application Dec. 19, 1969, Ser. No. 886,802
Int. Cl. H04b *1/64*
U.S. Cl. 325—38 **9 Claims**

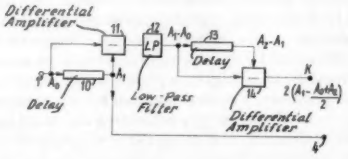
The generation of an asynchronous information bearing signal comprised of a series of pulses wherein the pulse repetition rate is proportional to a preselected non-linear function of the instantaneous magnitude of the modulating signal.



3,708,753
PRODUCING VERTICAL APERTURE CORRECTION SIGNALS FOR TELEVISION IMAGE TRANSMITTERS

Helmut Radecke, Darmstadt, Germany, assignor to Fernseh GmbH, Darmstadt, Germany

Filed April 6, 1971, Ser. No. 131,719
Claims priority, application Germany, April 29, 1970, P 20 20 861.1
Int. Cl. H03b *1/00*
U.S. Cl. 328—162 **8 Claims**



Production of a vertical aperture correction signal for studio-type television-image transmitters. A fist video signal A_0 is delayed one video line period to produce a signal A_1. These signals are compared to produce a signal A_1-A_0, which is passed through a low-pass filter and delayed another line period to produce a signal A_2-A_1. Signals A_1-A_0 and A_2-A_1 are compared to produce the correction signal.

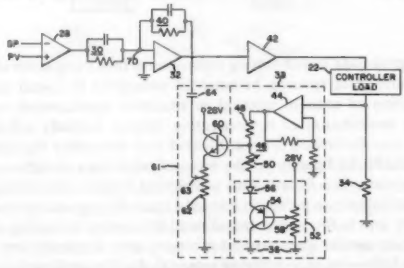
ERRATUM

For Class 329—144 see:
Patent No. 3,708,763

3,708,754
PROCESS CONTROLLER WITH GAIN-CHANGING CIRCUITRY

Elmer Paul Diehl, Wakefield, Mass., assignor to General Electric Company, Lynn, Mass.

Filed Oct. 16, 1970, Ser. No. 81,462
Int. Cl. H03g *3/30*
U.S. Cl. 330—1 A **9 Claims**



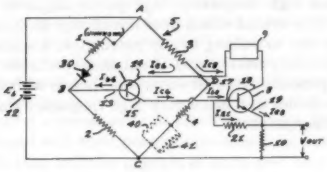
A process controller having gain-changing circuitry in a negative feedback loop for a controller amplifier for changing

the controller gain as a function of controller output. A pair of resistors form a voltage divided connected between the output and a variable voltage source. The variable voltage source is adjusted to the desired value of the output at which the controller is to change gain. The voltage at the junction of the resistors is introduced to the amplifier input through a feedback impedance. A switching circuit is connected between the variable voltage source and the voltage divider. When the output voltage is less than the adjustable variable voltage, the switch is open and a first proportion of the output voltage is introduced to the feedback impedance. When the output voltage is greater than the adjusted variable voltage, the switch is closed causing the voltage divider to be conductive, thereby introducing a second proportion of the output voltage to the feedback impedance.

3,708,755
SELF ADJUSTING BRIDGE CIRCUIT WITH NEGATIVE FEEDBACK

Robert A. Ruehle, 5594 East Jefferson, Denver, Colo.

Continuation-in-part of Ser. No. 878,982, , which is a continuation of Ser. No. 577,294,. This application Ser. No. 111,371
Int. Cl. H03f *1/08*
U.S. Cl. 330—28 **4 Claims**

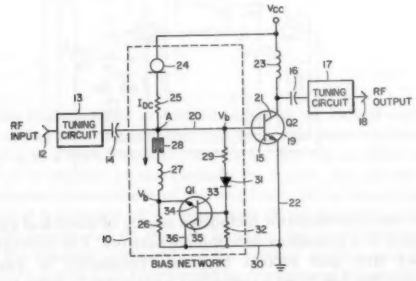


A self adjusting bridge circuit having a source of DC electrical power connected across two opposing corners of the bridge and having a first amplifier whose input circuit is interconnected across the other two opposing corners of the bridge wherein the output of the said first amplifier is connected to the input of a feedback amplifier, the output of which is connected back to one of said points of connection between the bridge and the input of the first amplifier, and wherein the current feedback from the feedback amplifier introduces negative feedback into the bridge.

3,708,756
BIASING NETWORK FOR TRANSISTORS

Lyle A. Fajen, Scottsdale, Ariz., assignor to Motorola, Inc., Franklin Park, Ill.

Filed May 12, 1971, Ser. No. 142,699
Int. Cl. H03g *3/30*
U.S. Cl. 330—29 **9 Claims**

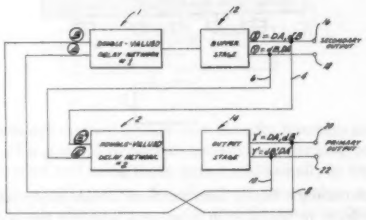


A biasing network for an RF transistor amplifier is provided wherein the bias varies smoothly and continuously from a value below turn on giving class B operation at low power inputs, to a lower valve giving class C operation at higher power levels, and finally, to a point where the DC dynamic impedance between the base and the emitter of the amplifier is extremely low, promoting maximum transistor gain and efficiency. Linear amplification at RF frequencies over the full range of power inputs is achieved.

3,708,757
OSCILLATOR LOOP INCLUDING TWO DOUBLE VALUED MOSFET DELAY NETWORKS

Giuseppe Savarese; Giuseppe Campellone; Bruno DeLuccia, and Giovanni Russo, all of Naples, Italy, assignors to General Instrument Corporation, Newark, N.J.

Filed July 7, 1971, Ser. No. 160,307
Int. Cl. H03k *3/28*
U.S. Cl. 331—57 **19 Claims**

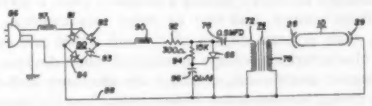


An MOS oscillator is disclosed in which a pair of delay networks are provided, each having two inputs and two outputs, each network having the operating characteristic that a change in one of its inputs in a given sense produces a change in its outputs in a relatively short time and a change in the other of its inputs in that given sense produces a change in its outputs in a relatively long time, the two networks having their inputs and outputs cross-connected. The networks may be formed of MOS devices, all of them on a single substrate. From such a network two sets of outputs are obtained, one set being in the form of complementary pulses and the other set being in the form of complementary square waves. The frequency of operation of the oscillator can be controlled by varying the voltage applied to MOS devices in the circuit which function as resistors, thereby modifying the time constant of capacitor-charging circuits in which those resistors are present.

3,708,758
LASER PUMPING APPARATUS

Kenneth A. Snow, and Richard E. Vandewarker, both of Greece, N.Y., assignors to Bausch & Lomb Incorporated, Rochester, N.Y.

Continuation-in-part of Ser. No. 748,289, June 29, 1968. This application Nov. 27, 1970, Ser. No. 93,459
Int. Cl. H01s *3/09*
U.S. Cl. 331—94.5 **9 Claims**

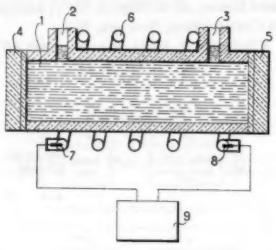


A circuit is disclosed for generating high voltage, low frequency alternating pulses having a high harmonic content of high frequencies sufficient to energize a gas laser. Two separate conductive electrodes are attached to the exterior of a gas laser tube and are connected to receive the high voltage for exciting and sustaining the operation of the laser.

3,708,759
LIQUID LASER

Franck Collier, Longjumeau; Jean-Daniel Dauchy, Paris; Christian Le Sergent, Sainte-Genevieve-des-Bois, and Maurice Michon, Draveil, all of France, assignors to Compagnie Generale d'Electricite, Paris, France

Filed Aug. 31, 1971, Ser. No. 176,457
Claims priority, application France, Sept. 4, 1970, 7032264
Int. Cl. H01s 3/20
U.S. Cl. 331—94.5 5 Claims

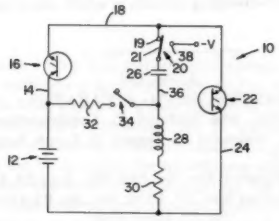


A laser using a liquid laser medium which comprises a doping medium in solution in a solvent wherein the solvent includes thionyl chloride ($SOCl_2$). The thionyl chloride permits an operating temperature range far greater than that found in the prior art.

3,708,760
AVALANCHE BREAKDOWN SINUSOIDAL OSCILLATOR

Zoltan D. Farkas, 854 Coleman Avenue, Menlo Park, Calif.

Filed Dec. 24, 1970, Ser. No. 101,355
Int. Cl. H03b 11/10
U.S. Cl. 331—107 R 5 Claims

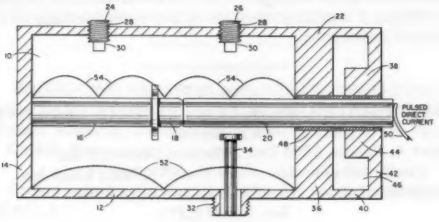


A sinusoidal oscillator having a resonant path, a direct current voltage source, and two or more two-terminal, active devices, such as pnpn diodes, that break down and conduct when a characteristic voltage is reached. Such devices, when oscillating is established, conduct on alternate half-cycles. When a device breaks down, it becomes a low resistance and an oscillation will be established for a half a period. During this time, the voltage across the other device is less than its breakdown voltage. At the end of the half-period, the first device becomes back-biased and conduction through it ceases. Then, the second device breaks down and conducts for a half-cycle. The two devices continue thereafter to conduct on alternate half-periods so that substantially continuous, sinusoidal oscillations are established, and are sustained by the direct current source.

3,708,761
CONCENTRIC LINE NEGATIVE RESISTANCE OSCILLATOR

Richard Calvin Havens, Scottsdale, Ariz., assignor to Motorola, Inc., Franklin Park, Ill.

Filed March 24, 1971, Ser. No. 127,578
Int. Cl. H03b 7/12
U.S. Cl. 331—107 R 7 Claims

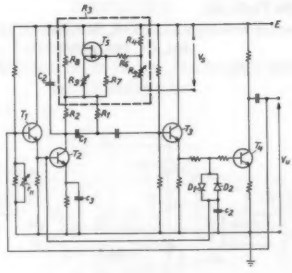


A pulsed high frequency, high power negative resistance oscillator is provided which does not change its instantaneous frequency due to pulsing to any perceptible amount and thus achieves a near perfect sin x/x frequency spectrum. The oscillator can produce up to 10 watts peak power with state of the art Gunn diodes and has a very high frequency stability with change in temperature.

3,708,762
ELECTRONIC OSCILLATOR USING R-C FILTER IN WHICH FREQUENCY IS CONTROLLED BY ONE RESISTOR

Lars Konrad Nilsson, Hagersten, Sweden, assignor to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden

Filed April 29, 1971, Ser. No. 138,455
Claims priority, application Sweden, June 2, 1970, 7627/70
Int. Cl. H03b 5/24
U.S. Cl. 331—108 B 3 Claims

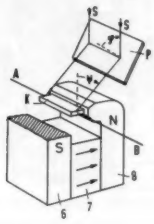


An electric oscillator includes a source of electrical energy coupled to a frequency determining network. The network includes first and second branches connected in parallel wherein the first branch comprises a capacitor and the second branch comprises a variable resistor connected to one end of each of two fixed resistors whose other ends are interconnected by a further capacitor.

3,708,763
DEVICE FOR TRANSMISSION OF INFORMATION WITH AN INFRARED RADIATION SOURCE

Bernt Paul, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed March 15, 1971, Ser. No. 123,949
Claims priority, application Germany, March 18, 1970, P 20 12 746.2
Int. Cl. G02f 2/00
U.S. Cl. 329—144 **13 Claims**

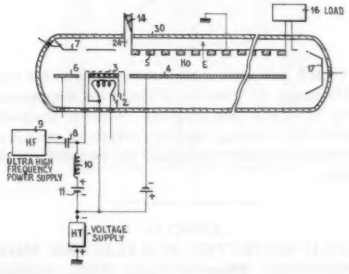


A receiver for an infrared transmission system, particularly for a system in which polarization-modulated radiation is provided with a laser as the radiation source, comprises a magnetic system having at least one pole around which are arranged two pairs of OEN or Ettinghausen-Nernst detectors or PEM or homogenous crystal body detectors including radiation sensitive crystals and respective analyzers. The detectors are arranged with their polarization directions being mutually perpendicular, and the crystals of each pair have a common polarization direction.

3,708,764
TRAVELLING WAVE TUBES

Pierre Guenard, and Bernard Epsztein, both of Paris, France, assignors to Thomson-CSF

Filed Jan. 22, 1971, Ser. No. 108,778
Claims priority, application France, Jan. 26, 1970, 7002643
Int. Cl. H03c 1/28
U.S. Cl. 332—5 **7 Claims**

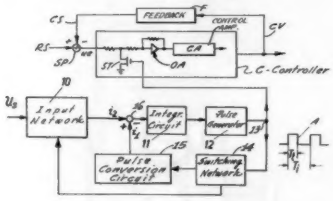


An improvement in piloted amplifier or locked-oscillator travelling wave tubes of the "M" type, said improvement consisting in a high frequency device for directly modulating the beam in density at the cathode by a grid, this device, in a preferred embodiment of the invention, being constituted by coaxial waveguide of T - form, one of the branches of the T being terminated on the one hand by the cathode supported by the internal conductor of the coaxial section, and on the other hand by a grid supported by the external conductor, and the high frequency signal for modulating the beam being injected into said coaxial waveguide, and having a maximum amplitude in the neighborhood of the cathode.

3,708,765
FUNCTION GENERATOR FOR PROVIDING PULSE WIDTH MODULATION

Wolfgang Salamon, and Rolf Lother, both of Bremen, Germany, assignors to Vereinigte Flugtechnische Werke Fokker GmbH, Bremen, Germany

Filed Jan. 13, 1971, Ser. No. 106,019
Claims priority, application Germany, Jan. 28, 1970, P 20 03 587.4
Int. Cl. H03k 7/08
U.S. Cl. 332—9 R **13 Claims**

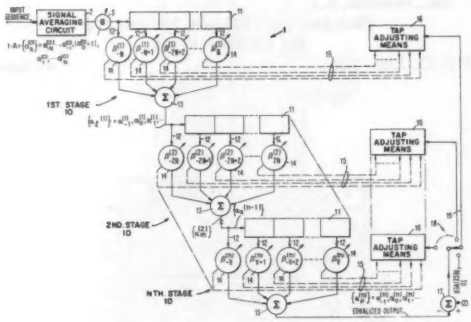


A feedback control system with transfer function control by means of a control apparatus providing switching pulses for such control and using these pulses additionally in an internal feedback configuration for function processing a control signal which ultimately is to control the transfer function of the control system. Control system and control apparatus are linked by a line providing switching pulses from the latter to the former.

3,708,766
AUTOMATIC EQUALIZER AND METHOD OF OPERATION THEREFOR

Richard T. Sha, Mohegan Lake, and Donald T. Tang, Yorktown Heights, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 31, 1970, Ser. No. 103,235
Int. Cl. H04b 3/04
U.S. Cl. 333—18 **26 Claims**



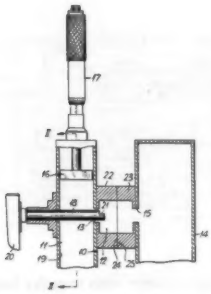
An automatic equalizer with extremely fast convergence is disclosed. The weight setting procedure or algorithm is basically an iterative operation which can be conveniently expressed by cascaded equalizers. One form of the apparatus utilized consists of a plurality of equalizer stages which have their tap settings changed after successive iterations (the first iteration adjusts the first equalizer stage, the second iteration adjusts the second equalizer stage and so on) such that after n iterations a given initial distortion D is reduced to at most D^{2^n}. The algorithm involved and the method of operating the equalizer is also disclosed.

3,708,767

WAVEGUIDE COUPLING DEVICE

William Stanley Moore, Chilwell, England, assignor to National Research Development Corporation, London, England

Filed May 20, 1971, Ser. No. 145,393
Claims priority, application Great Britain, May 27, 1970, 25,513/70
Int. Cl. H01p 5/12
U.S. Cl. 333—24 R 10 Claims



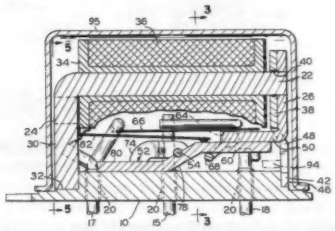
A waveguide coupling device has first and second waveguides coupled to opposite ends of a resonant cavity by respective irises. One waveguide has two relatively broad and two relatively narrow faces, the corresponding iris being in one of the broad faces and displaced from the axis thereof in such a manner that displacement of standing waves along the axis of this waveguide causes rotation of the plane of polarization of a field fed into the cavity through the iris. A tuning element, having a non-circular cross-section, passes into the cavity through one of the irises. Rotation of the tuning element about its axis thus varies the geometry of the cavity.

3,708,768

MINIATURE RELAY

George B. Pratt, Portland, Oreg., assignor to Datron Systems, Inc., Fairfield, N.J.

Filed June 18, 1971, Ser. No. 154,272
Int. Cl. H01h 51/06
U.S. Cl. 335—128 9 Claims



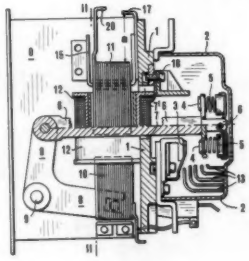
A compact electromagnetic relay includes an operating coil disposed upon a core which is positioned above a magnetic header by magnetic and non-magnetic end supports. A balanced armature is located between the core and header, and pivots about an axis perpendicular to the axis of the core and parallel to the surface of the header when magnetically attracted by the said header and a pole end portion.

3,708,769

ELECTROMAGNETIC CONTACTOR

Alfio Caltabiano, Turin, Italy, assignor to Ghisalba S.p.A., Turin, Italy

Filed July 7, 1971, Ser. No. 160,438
Claims priority, application Italy, Oct. 22, 1970, 70514
Int. Cl. H01h 50/18
U.S. Cl. 335—132 8 Claims



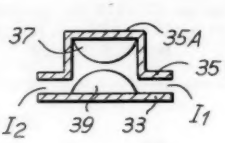
An electromagnetic contactor with a magnetic core subdivided into two portions, wherein the first of said portions is mounted fixedly with respect to the operative closure stroke of the contactor, but with no positive connection to the contactor structure so as to move back under impact of the second core portion at the time of contactor closure. Said first core portion may be manually lifted for disengaging and removing the driving coil of the contactor.

3,708,770

REED SWITCH

Mario Martelli, Via Porta Rossa 6, Firenze, Italy

Filed Jan. 5, 1971, Ser. No. 103,976
Claims priority, application Italy, Jan. 9, 1970, 9310 A/70
Int. Cl. H01h 1/54, 51/28
U.S. Cl. 335—154 7 Claims



A reed switch includes two ferromagnetic strips supported in a sealed housing. At least one of the strips is supported from the housing by a resilient member. When a magnetic field links the strips the resilient member allows its associated strip to move towards the other strip until the two strips make electrical contact.

3,708,771

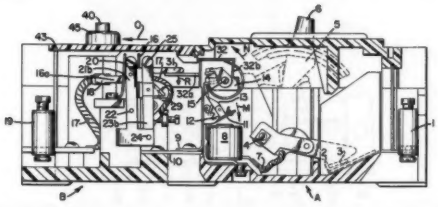
OVERLOAD PROTECTION FOR ELECTRIC MOTORS

Karl Schreckenberg, Alberton; Louis Klein, Johannesburg, and Lorenzo Antonio Read, Boksburg, all of Republic of South Africa, assignors to Fuchs Electrical Industries (Proprietary) Limited, Transvaal, Republic of South Africa

Filed Dec. 9, 1970, Ser. No. 96,304
Claims priority, application South Africa, Dec. 12, 1969, 69/8654
Int. Cl. H01h 71/74
U.S. Cl. 335—176 2 Claims

Electric overload protection apparatus comprising current sensitive means, connectable in an electric circuit and operative to perform an actuating function, such as to cause interruption of the electric circuit or to set off an alarm, when current flow through the current sensitive means exceeds a

predetermined rated magnitude. The current sensitive means has a delayed response dependent on the magnitude of the excess current. Setting means is provided for changing the rating of the current sensitive means in a single step from a predetermined normal value to a predetermined higher value. The current sensitive means preferably includes at least one thermal sensitive bimetallic current conductor element which is arranged to flex and release a normally inoperative trigger when current flow through the bimetallic element exceeds the rated magnitude. The trigger is biased towards an operative position in which it can perform an actuating function.



3,708,772

MAGNETIC LENS ARRANGEMENT

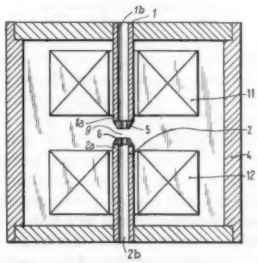
Guy J. Le Franc, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed Nov. 30, 1971, Ser. No. 203,283

Claims priority, application Germany, Dec. 4, 1970, P 20 59 781.3

Int. Cl. H01f 7/00

U.S. Cl. 335—210 **5 Claims**



A highly compact magnetic lens arrangement which economically provides the highest field strength on the axis with the minimum beam half width and a minimum outer field strength of the coil winding comprises two tubular shielding cylinder means of superconductive material coaxially aligned with the lens axis, said cylinder means each having a first end and a second end, said first ends being spaced from each other to define a unshielded lens gap therebetween, said lens gap having a coil means positioned about the cylinder means to create a magnetic field, a cooling agent adapted to be present about the cylinder which cause a concentration of the magnetic field adjacent the particle beam, and a ferromagnetic ring-shaped pole shoe on each of said first ends of said cylinders for regulating and guiding the magnetic field.

3,708,773

CASH STORAGE DRAWER WITH ELECTRICALLY ACTUATED LATCH MEANS

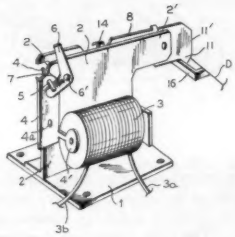
Shiro Ishii, Tokyo, Japan, assignor to C R Parts Ltd., Tokyo, Japan

Filed Sept. 28, 1971, Ser. No. 184,535

Claims priority, application Japan, Oct. 5, 1970, 45/98134

Int. Cl. H01f 7/08

U.S. Cl. 335—254 **1 Claim**



Electromagnetically actuated latch means for releasing a cash storage drawer from a housing on operation of a switch to control electric power to electromagnetic means.

3,708,774

POTENTIAL TRANSFORMER HAVING A BAR-SHAPED MAGNETIC CORE

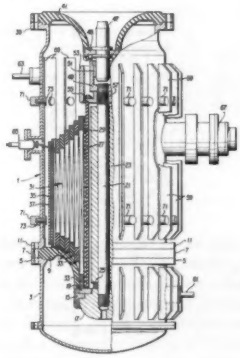
Shinichi Menju, and Hirokuni Aoyagi, both of Kanagawa-ken, Japan, assignors to Tokyo Shibaura Electric Company Ltd., Kanagawa-ken, Japan

Filed Oct. 27, 1971, Ser. No. 192,921

Claims priority, application Japan, Oct. 31, 1970, 45/95648

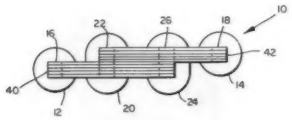
Int. Cl. H01f 15/04

U.S. Cl. 336—84 **6 Claims**



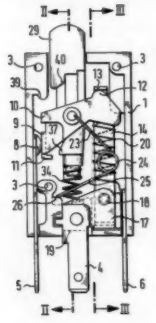
A potential transformer having a bar-shaped magnetic core is provided. A winding assembly includes a primary winding which is wound on the core and a secondary winding which is wound on the primary winding. A cone-shaped coil supporting insulator is provided and is fixed at a flange portion thereof to a tank, which houses the components of the transformer. The core is supported at a center portion of the insulator, and the winding assembly is supported on the inside wall of the insulator. A magnetic shield is provided so as to cover the assembly and is attached to the inside wall of the tank. An insulation gas is filled in the tank.

3,708,775
ADJUSTABLE IMPEDANCE REGULATING TRANSFORMER
Asa H. Haddock, Jr., and Jay W. Howard, both of c/o ESB Incorporated, P.O. Box 8109, Philadelphia, Pa.
Filed Aug. 6, 1971, Ser. No. 169,639
Int. Cl. H01f 21/08
U.S. Cl. 336—155 3 Claims



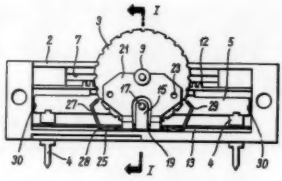
An adjustable impedance regulating transformer of the type having four windings including a primary winding, a secondary winding and two control windings wound on four legs of a transformer core. The core comprises in sequence a first leg of a first cross section, two legs of twice the first cross section and a fourth leg of the first cross section. The two control windings are located on the two legs of first cross section and the primary and secondary windings are located, respectively, on the two legs of twice the first cross section. The core can utilize standard transformer laminations.

3,708,776
PUSH-BUTTON ACTUATED EXCESS CURRENT SWITCH
Jakob Ellenberger, Ernhofer Weg 2, Altdorf, Germany
Filed Oct. 22, 1971, Ser. No. 191,769
Claims priority, application Germany, Oct. 26, 1970, P 20 52 433.8
Int. Cl. H01h 71/16, 73/30
U.S. Cl. 337—66 11 Claims



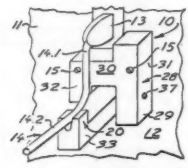
This invention relates to a push-button actuated excess current switch which includes a thermal trip, a trip-free release, a switching member connected to the pushbutton and a contact bridge pivotally mounted on the switching member. The contact bridge is in the form of a thin metal plate and is pivoted on the switching member by means of a tubular rivet. The tubular rivet is arranged so that it engages a right-angled portion of one leg of a torsion spring for effecting trip-free release, the other leg of the torsion spring being supported in the housing. The tubular rivet is arranged so that it is displaceably and rotatably guided in a groove in the switching member, which groove extends in the switching direction of the switch.

3,708,777
SLIDING POTENTIOMETER WITH A SLIDER MOVABLE BY A ROLLER GEAR
Lothar Volkheimer, Trossingen, Germany, assignor to Firma Hopt Electronic GmbH, Rottweil, Germany
Filed May 28, 1971, Ser. No. 147,893
Int. Cl. H01c 9/02
U.S. Cl. 338—183 8 Claims



A sliding potentiometer including a slider movable by a roller gear, which slider electrically connects a resistance strip and a contact strip with each other, the roller gear being drivingly connected to a rack arranged in parallel to the resistance strip by means of a pinion coupled to the roller gear. The potentiometer is provided with means for uncoupling the drive connection of the roller gear in the thermal areas of the roller gear's path of motion and means for limiting the translational movement of the roller gear in the terminal areas of the roller gear's path of movement.

3,708,778
WALL CLAMP FOR ELECTRICAL CORDS
Earl J. McKeever, 443 East 46th Avenue, Vancouver, 15 British Columbia, Canada
Continuation-in-part of Ser. No. 26,280, April 7, 1970, abandoned. This application Dec. 16, 1971, Ser. No. 208,721
Claims priority, application Canada, April 1, 1970, 078,789
Int. Cl. H01r 13/58
U.S. Cl. 339—75 P 10 Claims

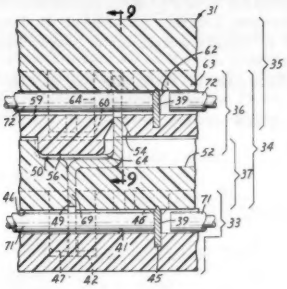


A wall clamp assembly secured to a wall to retain a plug of an electrical appliance cord in a socket of a wall outlet. Cord is retained in a v-shaped opening of a clamping means at an outer end of a hinged arm of the assembly, the v-shaped opening having side walls with serrations or ridges. Load on the cord is sustained by the clamping means, the arm rotating to follow limited movement of the cord.

3,708,779
WIRE-SPLICING APPARATUS AND METHOD
Dennis J. Enright, St. Paul; Richard D. Kahabka, Burnsville, and Donald F. Miller, St. Paul, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Continuation-in-part of Ser. No. 823,598, May 12, 1969. This application Nov. 23, 1970, Ser. No. 91,781
Int. Cl. H01r 11/20
U.S. Cl. 339—99 R 23 Claims

Apparatus and method are described for splicing together

the corresponding wire-ends of opposing sections of communications cables using solderless U-connectors in multiple-layer modules.

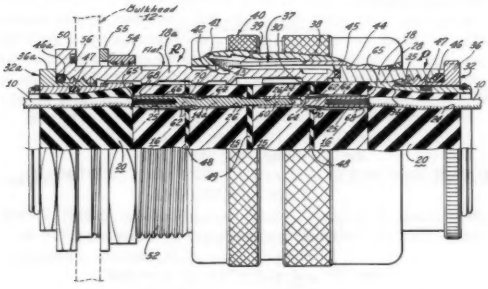


3,708,780

MULTIPLE WIRE ELECTRICAL CONNECTOR

Robert G. Pierce, Downey, Calif., assignor to Microdot Inc., South Pasadena, Calif.

Continuation of Ser. No. 663,894, Aug. 28, 1967, abandoned.
This application Feb. 11, 1970, Ser. No. 9,125
Int. Cl. H01v *13/50*
U.S. Cl. 339—176 **33 Claims**



A connector assembly incorporating a plurality of contact elements on the ends of a corresponding plurality of wires for mating with a similar complementary connector assembly includes insulating means forming a plurality of longitudinal passages to confine and retain the plurality of contact elements, the insulating means being divided into a rear section and a separate front section. The rear section has rear entrances to the longitudinal passages that are large enough to clear the contact elements and means cooperates with the front section to lock the contact elements in the longitudinal passages in response to assembling of the front section to the rear section. This arrangement permits the plurality of contact elements with the wires attached thereto to be inserted into the longitudinal passages of the insulating means from the rear thereby to avoid the necessity of threading the wires through the rear section of the insulating means before attaching the contact elements to the wires.

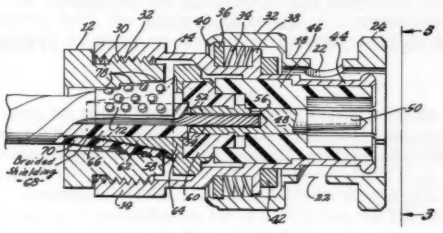
3,708,781

ELECTRICAL CONNECTOR

Emanuel Trompeter, Tarzana, Calif., assignor to Trompeter Electronics, Inc., Chatsworth, Calif.

Filed April 1, 1971, Ser. No. 130,185
Int. Cl. H01r *17/04*
U.S. Cl. 339—177 R **8 Claims**

A connector for use with a coaxial cable of the type including a central wire member and an outer metallic shielding member separated by an inner insulating member and additionally including an outer insulating member covering the outer metallic shield and with a first hollow truncated cone member having the smaller end thereof for insertion at a location between the inner insulating member and the outer insulating member and with the outer insulating member flared outwardly by the first cone member and with a second hollow truncated cone member having a plurality of openings placed over the outer insulating member and additionally including a locking assembly for engaging the first and second cone members to provide pressure between the cone members to have portions of the outer insulating member flow into the openings of the second cone member to lock the outer insulating member between the first and second cone members.

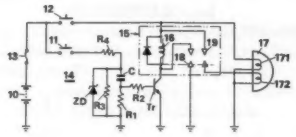


3,708,782

ABRUPT BRAKE APPLICATION INDICATOR FOR A MOTOR VEHICLE

Takakazu Mori, Toyota, Japan, assignor to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed June 3, 1970, Ser. No. 43,112
Claims priority, application Japan, June 5, 1969, 44/44138
Int. Cl. B60q *1/44*
U.S. Cl. 340—66 **12 Claims**

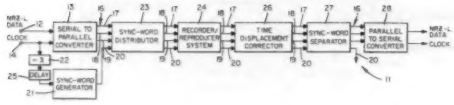


A first switch, mounted in a brake pedal pad, turns on in response to slight pressure and remains on during continuance of the pressure. A second switch turns on when the brake pedal is moved or when the brake hydraulic pressure reaches a predetermined level. Closing of the first switch starts charging of a capacitor through a resistor. Closing of the second switch completes a circuit that turns on a brake lamp. The second switch also energizes a relay coil in the emitter-collector path of a transistor. If the decaying charging current through the resistor is still sufficiently high by the time the second switch is closed, the before-mentioned resistor biases on the transistor and operates the relay. The latter brightens the illumination of the lamp or flashes the lamp on and off. If, by the time the second switch is closed, the capacitor is already charged, no further charging current flows through the resistor. The transistor remains non-conductive and there is no change in the brake lamp. Thus, abrupt application of the brakes produces bright illumination or flashing illumination of the brake lamp. Normal slower application of the brake pedal produces a normal illumination of the lamp.

3,708,783
INTERCHANNEL TIME DISPLACEMENT CORRECTION METHOD AND APPARATUS

Jan S. Hedin, Mountain View, Calif., assignor to Ampex Corporation, Redwood City, Calif.

Filed June 18, 1971, Ser. No. 154,420
Int. Cl. G08c *25/00*
U.S. Cl. 340—146.1 D **11 Claims**

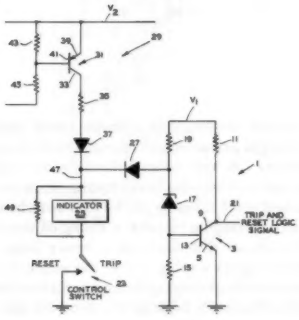


Associated digital data in a plurality of parallel data channels and a unique digital sync word successively repeated in one more parallel channel are exchanged without a change in data clock so that the digital data and repeated digital sync word are sequentially distributed in each of the data and sync channels. The parallel channels of distributed digital data and sync words are transmitted to a receiving station wherein the unique sync words are detected and any interchannel time displacement errors introduced by the transmission system eliminated by electronically correlating the time between the sync words in the parallel channels. Following correlation, the digital data and sync words in each channel are separated and redistributed in the data channels and sync channel as they were originally.

3,708,784
SWITCH INDICATOR MODULE WITH SINGLE-WIRE CONTROL

William Meyer Spencer, West End, N.J., assignor to The Bendix Corporation

Filed Jan. 6, 1971, Ser. No. 104,338
Int. Cl. G08b *21/00*
U.S. Cl. 340—147 R **13 Claims**

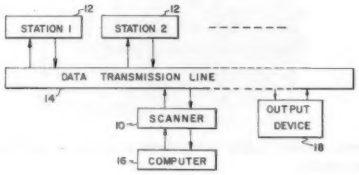


A control circuit has control means for issuing commands to a logic circuit to provide logic signals corresponding to the commands for controlling a device. An indicator circuit controlled by a signal when the device has not responded to a logic signal operates an indicator to indicate that the device has not responded to a command.

3,708,785
DATA SCANNER FOR REAL TIME INTERFACING OF A COMPUTER AND PLURAL REMOTE UNITS

Edward B. Rawson, Lincoln, and Joseph B. Ferguson, Harvard, both of Mass., assignors to Searle Medidate Inc., Waltham, Mass.

Filed July 31, 1970, Ser. No. 59,996
Int. Cl. G06f *5/04*
U.S. Cl. 340—172.5 **10 Claims**

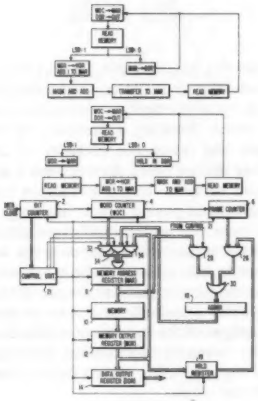


A data scanner for providing real time communication between a computer and a plurality of remote stations and for providing control of each of the stations. The data scanner channels two-way communication between the computer and remote stations through a single register-storage system which effects parallel/serial data conversions and provides a tapable source for data monitoring. An interrupt system responds to both computer and station signals to provide conditional and uncondition interrupts for servicing stations depending on computer status.

3,708,786
STORED PROGRAM FORMAT GENERATOR

Robert H. Hardin, and Keith H. Hill, both of Littleton, Colo., assignors to Martin Marietta Corporation, New York, N.Y.

Filed Oct. 20, 1971, Ser. No. 190,863
Int. Cl. G06f *5/06;* **H04j** *3/06*
U.S. Cl. 340—172.5 **7 Claims**



Disclosed is a unique stored program format generator for sequentially sampling a plurality of data channels at various sampling rates. The format generator accomplishes addressing of subcommutated data channels with the use of a single counter whose contents are combined with stored masking functions corresponding to different subcommutation factors. The combined word acts as an address word to access the generator memory at the location storing the address of the desired subcommutated data channel.

3,708,787
READ-ONLY MEMORY EMPLOYING METAL-INSULATOR-SEMICONDUCTOR TYPE FIELD EFFECT TRANSISTORS

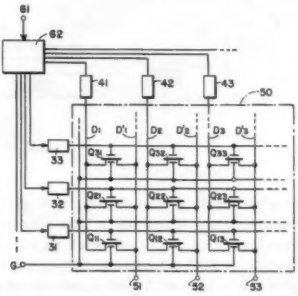
Katsuhiro Onoda; Ryo Igarashi; Toshio Wada; Sho Nakanuma, and Tohru Tsujide, all of Tokyo, Japan, assignors to Nippon Electric Company, Ltd, Minato-Ku, Tokyo, Japan

Filed March 13, 1970, Ser. No. 19,435

Claims priority, application Japan, March 15, 1969, 44/20675

Int. Cl. G11c *11/40*

U.S. Cl. 340—173 R **4 Claims**



A matrix-type read-only memory employing MIS field effect transistors is disclosed in which each transistor has a gate insulator film having the capability of permanently retaining injected charge carriers upon the application of a voltage exceeding a critical value. In a write-in operation, a pair of pulses are respectively applied across the gate electrode and one of the drain and source electrodes. The difference in the voltage levels of the two pulses exceeds the critical value.

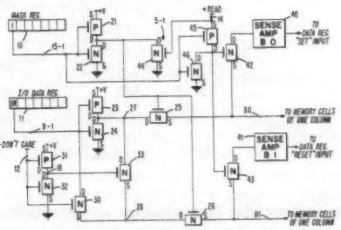
3,708,788
ASSOCIATIVE MEMORY CELL DRIVER AND SENSE AMPLIFIER CIRCUIT

Jack R. Dailey, Apalachin, and John G. Surgent, Endwell, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 11, 1971, Ser. No. 197,907

Int. Cl. G11c *11/40, 15/00*

U.S. Cl. 340—173 R **10 Claims**



An improved driver permits the driving of a functional array of four-state cells having only two bit lines per cell while providing for the writing of any one of four possible logical states (0, 1, X, Y) into the array during one write cycle. In a preferred form, the improved driver includes a first pair of field effect transistors which are selectively operated during write and search/select cycles to couple a pair of junctions (or nodes) in the driver to the pair of data bit lines of a cell. In the absence of "don't care" signals, additional field effect transistors respond to input data to the driver to apply complementary signals (01 or 10) to the nodes for application to the respective bit lines. In response to the receipt of "don't care" signals, field effect transistors in the driver electrically connect the two nodes causing the same selected signal level (00 or 11) to be applied to the data bit lines. A pair of field effect transistors are selectively operated during read cycles to couple the data bit lines to respective sense amplifiers. In a preferred form, the driver is comprised of complementary field effect transistors operated in the enhancement mode.

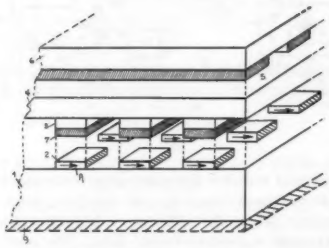
3,708,789
THIN FILM BINARY DATA INFORMATION STORES

Robert J. Spain, Ville D'Avray, France, assignor to Compagnie Internationale Pour L'Informatique, Les Clayes-sous-Bois, France

Continuation of Ser. No. 808,763, March 20, 1969, abandoned. This application Jan. 19, 1971, Ser. No. 107,860

Int. Cl. G11c *11/14, 5/02*

U.S. Cl. 340—174 BC **10 Claims**



In a magnetic memory store in which the material of the memory points consists of anisotropic magnetic material and which is controlled from at least two arrays of conductors of distinct relative orientations, magnetostatic shielding means provide a control of the apparent coercive field of the magnetic material from a higher value between the time intervals of the selection controls to a lower value during such time intervals.

3,708,790
DEVICE FOR WRITING AND READING MAGNETIC TICKETS

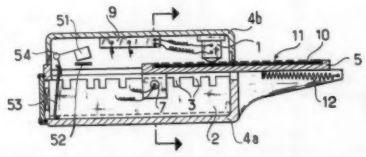
Gerard Nourigat, Sainte-Genevieve-Des-Bois, France, assignor to Compagnie Generale D'Automatisme, Paris, France

Filed Jan. 22, 1971, Ser. No. 108,744

Claims priority, application France, Jan. 22, 1970, 7002312

Int. Cl. G11b *3/38, 5/56, 15/08*

U.S. Cl. 340—174.1 G **15 Claims**

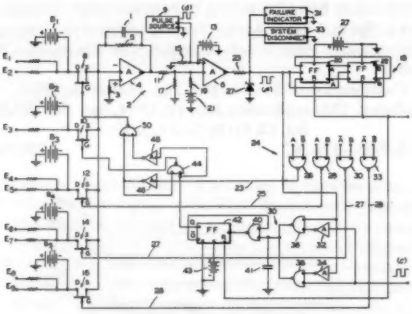


Device for recording data on or reading data from a magnetic ticket wherein a movable ticket carrier having a data detector mounted thereon is positioned for guided movement relative to a magnetic head and a member carrying coded data so that as the ticket on the carrier is moved past the magnetic head, the data detector moves past corresponding portions of the coded data member. With the magnetic head used as a recording means, the data detector is connected thereto through an amplifier. With the magnetic head used as a reader, the data detector and the magnetic head are connected to a comparator to detect correspondence between the data recorded on the ticket and the data on the data member.

3,708,791
SEQUENTIAL MONITOR

Peter F. Curran, Westchester County; David A. Tawfik, Queens County, both of N.Y., and Robert L. James, Bloomfield, N.J., assignors to The Bendix Coration

Filed Dec. 28, 1970, Ser. No. 101,646
Int. Cl. G08b 21/00
U.S. Cl. 340—248 A 10 Claims

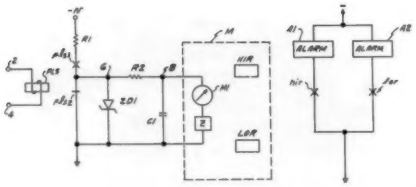


A sequential monitor for comparing redundant signals appearing at various points in a control system and for providing an indication when the difference between the redundant signals exceeds a predetermined limit. The monitor is multiplexed in the system so that a single monitor suffices for comparing signals at all of the points and is fail safe in that it provides an indication for internal monitor malfunctions as well as for signal failures.

3,708,792
METER CIRCUIT FOR MEASURING THE MAKE-TO-BREAK RATIO OF PULSES

Marvin Forest Malm, and Joseph Charles McKinney, both of Milan, Tenn., assignors to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Feb. 22, 1971, Ser. No. 117,533
Int. Cl. G08b 21/00
U.S. Cl. 340—253 R 2 Claims

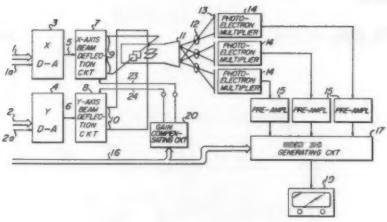


A meter is calibrated to provide a direct reading of the ratio between the make portion and break portion of pulses in a telephone switching system as determined by measurement of the voltage appearing on a capacitor charged during the make pulses. The charge on the capacitor is provided directly from a fixed voltage source via relay contacts, resistors and a zener diode. These components together are selected to establish and maintain a voltage level on the capacitor which is proportional to the make-break ratio.

3,708,793
VIDEO SIGNAL GENERATING SYSTEM

Tohru Murai, Odawara, Japan, assignor to Hitachi, Ltd., Chiyoda-ku, Tokyo, Japan

Filed Aug. 6, 1971, Ser. No. 169,679
Int. Cl. G06f 3/14
U.S. Cl. 340—324 A 2 Claims

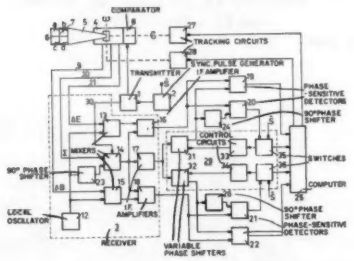


A video signal generating system using a single cathode-ray tube for simultaneously scanning a plurality of character matrices to produce a plurality of video signal representing respective characters and selectively displaying only one of said video signals. It is provided with a gain compensating circuit for varying the gain of beam deflecting means for the cathode-ray tube to a value corresponding to a character matrix according to a select code representing the corresponding one of said plurality of character matrices.

3,708,794
MONOPULSE RADAR APPARATUS

Yftinus Frederik van Popta, Hengelo (O), Netherlands, assignor to N. V. Hollandse Signaalapparaten, Hengelo, Netherlands

Filed Dec. 29, 1969, Ser. No. 888,250
Claims priority, application Netherlands, Jan. 3, 1969, 6900059
Int. Cl. G01s 9/02
U.S. Cl. 343—7.4 3 Claims



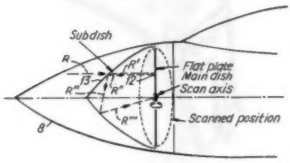
A monopulse radar apparatus for automatically tracking a moving target by deriving error signals for operating the tracking circuits from composite signals formed from difference signals combined with the sum signal obtained from echo signals received within predetermined receiving patterns by means of a tracking antenna. The sum signal has a phase difference of 90° relative to the difference signals introduced into it. Each of the composite signals is fed to separate phase detecting sets, each comprising two phase detectors; the sum signal serving as a reference signal for the first phase detectors in each set and after compensation of the 90° phase difference, as a reference signal for the second phase detector in each set. The error signals are produced from the quotient of the output signals of the two phase detectors for each set.

3,708,795

CASSEGRAIN ANTENNA MOUNTED IN AIRCRAFT NOSE CONE

James Wilfred Lyons, Yorkshire, England, assignor to Hawker Siddeley Aviation Limited, Surrey, England

Filed Feb. 10, 1971, Ser. No. 114,320
Claims priority, application Great Britain, Feb. 10, 1970, 6,413/70
Int. Cl. H01q 19/14
U.S. Cl. 343—708 9 Claims



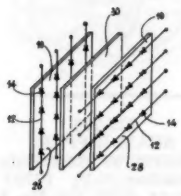
A forward-facing aircraft antenna of modified Cassegrain configuration, having a flat plate main dish and a sub-dish which has a reflecting surface chosen from among surfaces of revolution that require two or more reflections to bring a wave parallel to the axis of revolution to a substantial point focus.

3,708,796

ELECTRICALLY CONTROLLED DIELECTRIC PANEL LENS

Bony Gilbert, 67, Boulevard Gallieni, Issy, France

Filed Oct. 15, 1970, Ser. No. 81,062
Claims priority, application France, Oct. 15, 1969, 6935239
Int. Cl. H01q 19/06
U.S. Cl. 343—754 3 Claims



The apparatus and process for phase shifting a radiated microwave includes passing the microwave beam through a dielectric panel in which is imbedded at least one plane network of conductive leads running parallel with the electric field of the incident wave. Switches mounted on each lead are spaced from each other at distances less than two wavelengths in the dielectric material, of the incident energy. By these switches, the leads may be divided in little sections.

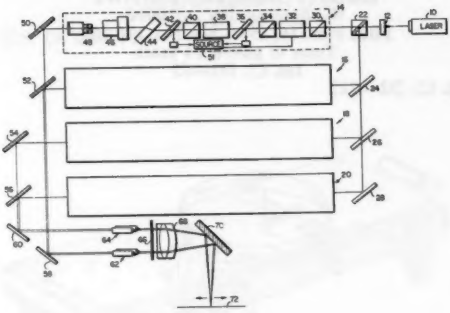
3,708,797

MULTI-CHANNEL LASER RECORDING SYSTEM

Kenneth R. Solomon; Alfred E. Mletzko, and Donald J. Walker, all of Trumbull, Conn., assignors to Columbia Broadcasting System Inc.

Filed Sept. 24, 1971, Ser. No. 183,402
Int. Cl. G01d
U.S. Cl. 346—108 18 Claims

A multi-channel laser recording system having an extremely high extinction ratio for achieving selected exposure of a record medium by an actuated channel without spurious exposure by non-actuated channels. A cascaded electro-optical



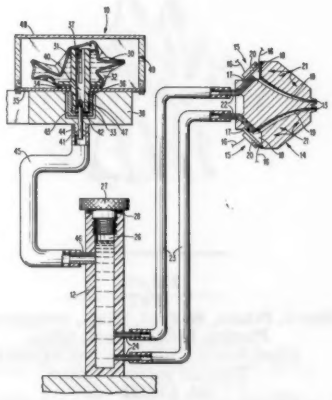
modulator assembly is provided in each system channel and is adaptively biased to maintain an optimum extinction ratio.

3,708,798

INK DISTRIBUTION FOR NON-IMPACT PRINTING RECORDER

Walter W. Hildenbrand, Brewster; Wilbur J. Levine, Poughkeepsie; Stanley A. Manning, Yorktown Heights, and Karl F. Stroms, Wappinger Falls, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 23, 1971, Ser. No. 211,232
Int. Cl. G01d 15/16
U.S. Cl. 346—140 4 Claims



A collapsible ink bag supplies ink at constant pressure through a manifold containing an air bubble trap, capable of venting, which manifold is connected in common to plural lines to a multiple orifice — multiple transducer fluid wave printing head of a recorder. Constant static pressure in the ink supply is provided to avoid inadvertent ejection of ink through orifices of the nozzles. The manifold contains an air bubble and the manifold inlet line has a sufficiently low resistance to flow. Its source of ink supply is free to expand and contract, and the hydraulic resistance to fluid flow in the lines to the head is sufficiently high to eliminate cross talk of waves between separate orifices. Alternatively, a built in reservoir in the head has a single low resistance connection to the source of ink supply and high resistance lines connect it to the orifices.

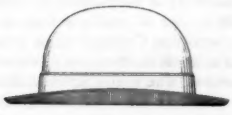
DESIGNS

JANUARY 2, 1973

225,695
APRON
Gerald L. Geiger, 2025 I St. NW., Washington, D.C. 20006
Filed Mar. 16, 1971, Ser. No. 125,008
Term of patent 14 years
Int. Cl. D2—*02*
U.S. Cl. D2—227

225,696
APRON
Gerald L. Geiger, 2025 I St. NW., Washington, D.C. 20006
Filed Mar. 16, 1971, Ser. No. 125,009
Term of patent 14 years
Int. Cl. D2—*02*
U.S. Cl. D2—227

225,697
HAT
Engelbert J. Peham, St. Paul, Minn., assignor to Peham Plastics, Inc., St. Paul, Minn.
Filed Feb. 2, 1971, Ser. No. 112,094
Term of patent 14 years
Int. Cl. D2—*03*
U.S. Cl. D2—258

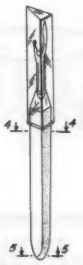


225,698
STUFFED PILLOW OR SIMILAR ARTICLE
Linda Ellen Levine, 7530 Stonecrest 75240, and Deborah Ann Zippel, 4407 Mill Run 75210, both of Dallas, Tex.
Filed Mar. 17, 1971, Ser. No. 125,459
Term of patent 14 years
Int. Cl. D6—*09*
U.S. Cl. D3—9

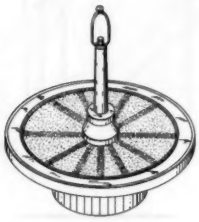
225,699
PILLOW OR SIMILAR ARTICLE
Linda Ellen Levine, 7530 Stonecrest 75240, and Deborah Ann Zippel, 4407 Mill Run 75210, both of Dallas, Tex.
Filed Mar. 17, 1971, Ser. No. 125,466
Term of patent 14 years
Int. Cl. D6—*09*
U.S. Cl. D3—9

225,700
SEAM RIPPER
Herman Ament, 60 Marbledale Road, Tuckahoe, N.Y. 10707
Filed Oct. 26, 1970, Ser. No. 25,652
Term of patent 14 years
Int. Cl. D6—*99*
U.S. Cl. D3—19

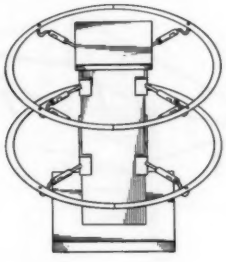
225,701
SEAM RIPPER
Herman Ament, 60 Marbledale Road, Tuckahoe, N.Y. 10707
Filed Nov. 18, 1970, Ser. No. 26,052
Term of patent 14 years
Int. Cl. D8—*03*
U.S. Cl. D3—19



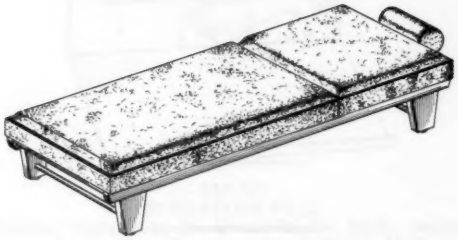
225,702
COMBINED TABLE AND LAMP
James C. Welker, 10802 W. 71st St., Shawnee, Kans. 66203
Filed Nov. 27, 1970, Ser. No. 26,188
Term of patent 14 years
Int. Cl. D6—*03*
U.S. Cl. D6—4



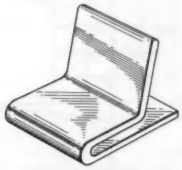
225,703
RACK FOR DISPLAYING MERCHANDISE
Anthony S. Miller, Jr., Happy Acres, R.D. 2, Atsion-Medford Road, Vincentown, N.J. 08088
Filed Oct. 16, 1970, Ser. No. 25,534
Term of patent 14 years
Int. Cl. D6—*99*
U.S. Cl. D6—28



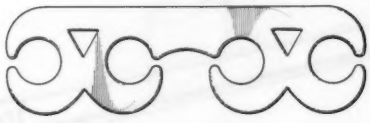
225,704
ADJUSTABLE LOUNGE
Arthur J. Geddings, 205 W. Broadway, Myrtle Beach, S.C. 29577
Filed Feb. 17, 1971, Ser. No. 116,299
Term of patent 14 years
Int. Cl. D6—*02*
U.S. Cl. D6—37



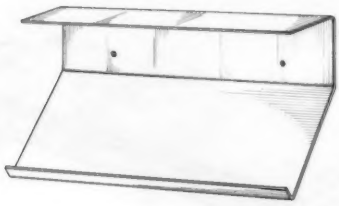
225,705
CHAIR
Frank R. Torrey, 9805 Dallas Ave., Silver Spring, Md. 20901
Filed Feb. 19, 1971, Ser. No. 117,207
Term of patent 14 years
Int. Cl. D6—*02*
U.S. Cl. D6—56



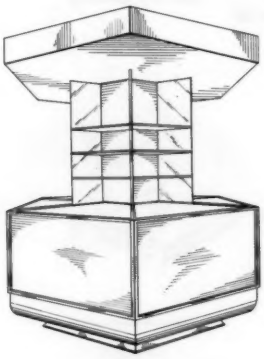
225,706
FISHING ROD BRACKET
Robert H. McCollum, 201 S. Lake Ave., Fullerton, Calif. 91101
Filed Nov. 27, 1970, Ser. No. 26,192
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—125



225,707
WALL MOUNTED BOOK AND MAGAZINE SHELF COMBINATION
Kenneth B. Brozen, 144 E. 36th St., New York, N.Y. 10016
Filed Sept. 28, 1970, Ser. No. 25,222
Term of patent 14 years
Int. Cl. D6—*99*
U.S. Cl. D6—136



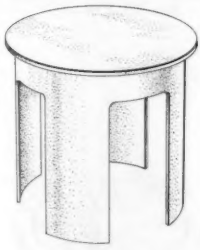
225,708
COSMETIC DISPLAY SELF-SERVICE COUNTER
Douglas J. Alippe, Tuxedo, and Frank A. De Sisto, Yonkers, N.Y., assignors to J. C. Penney Company, Inc., New York, N.Y.
Filed Sept. 24, 1970, Ser. No. 25,564
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—146



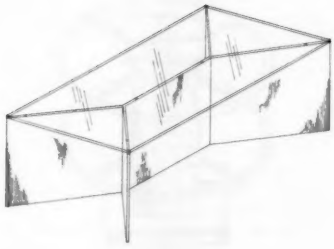
225,709
CHECK STAND DIVIDER
Don Pace, West Covina, Calif., assignor to Pacific Handy Cutter Incorporated, El Monte, Calif.
Filed Feb. 5, 1971, Ser. No. 113,117
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—191

225,710
TABLE
Lawrie G. McIntosh, Islington, Ontario, Canada, assignor to Carolina Enterprises, Inc., Tarboro, N.C.
Filed Aug. 3, 1970, Ser. No. 24,262
Term of patent 7 years
Int. Cl. D6—*03*
U.S. Cl. D6—146

225,711
COFFEE TABLE
Gordon L. Duern and Donald S. Griffin, Kitchener, Ontario, Canada, assignors to Electrohome Limited, Kitchener, Ontario, Canada
Filed Mar. 22, 1971, Ser. No. 127,066
Term of patent 14 years
Int. Cl. D6—*03*
U.S. Cl. D6—146

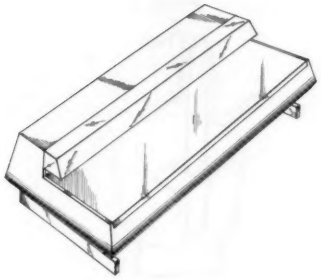


225,712
TABLE OR THE LIKE
Ronald J. McDonald, New Rochelle, N.Y. (76—59 264th St., Floral Park, N.Y. 11004)
Continuation of design applications Ser. No. 18,143, June 18, 1969, and Ser. No. 20,724 and Ser. No. 20,725, both Dec. 31, 1969. This application Apr. 20, 1970, Ser. No. 22,538
Term of patent 14 years
Int. Cl. D6—*03*
U.S. Cl. D6—177

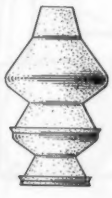


225,713
TOOL FOR APPLYING ANIMAL IDENTIFICATION TAG
Harley E. Nichols, Jr., Hardwick, Vt., assignor to C. H. Dana Company, Inc.
Filed Mar. 4, 1971, Ser. No. 121,238
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—14

225,714
LETTER OPENER
William Macowski, Caldwell, N.J., assignor to Ketcham & McDougall, Inc., Roseland, N.J.
Filed May 14, 1971, Ser. No. 143,742
Term of patent 14 years
Int. Cl. D8—*03*
U.S. Cl. D8—61

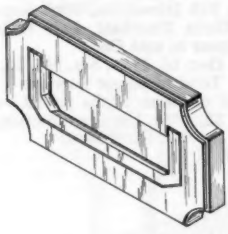


225,715
VACUUM CUP LIFTER FOR SHELL EGGS
Robert C. McCord, Romulus, Mich., assignor to Diamond International Corporation, New York, N.Y.
Filed Jan. 21, 1971, Ser. No. 108,689
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—71

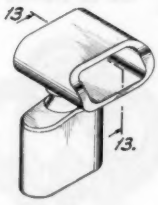


225,716
JIG BLOCK FOR HAND-HELD SHEARS
John R. Mason, Los Angeles, Calif., assignor to Dracon Industries, Chatsworth, Calif.
Filed Apr. 2, 1971, Ser. No. 130,878
Term of patent 14 years
Int. Cl. D8—*99*
U.S. Cl. D8—71

225,717
FURNITURE PULL
William Doyle Watt, Jr., Grand Rapids, Mich., assignor to Keeler Brass Company, Grand Rapids, Mich.
Filed Apr. 23, 1971, Ser. No. 137,103
Term of patent 14 years
Int. Cl. D8—*06*
U.S. Cl. D8—158



225,718
LIQUID SPRAY DISPENSER
John F. Gorman, 3207 Fryman Road, Studio City, Calif. 91604
Continuation of abandoned design applications Ser. No. 18,062, and Ser. No. 18,063, both July 7, 1969. This application Feb. 16, 1970, Ser. No. 21,456
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—8

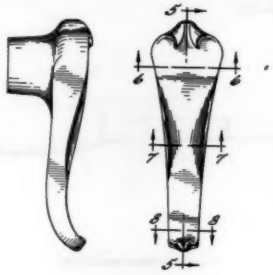


225,719
BOTTLE
Darlene V. Bradrick and Janice P. Lehne, both of 6145 Bennington Drive, Newark, Calif. 94560
Filed Aug. 26, 1971, Ser. No. 175,427
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—35

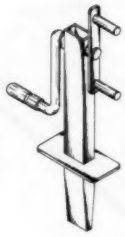
225,720
FLAT HOLLOW FILE
James A. Coon, 929 Drever St., West Sacramento, Calif. 95691, and Elwin Theobald, Fair Oaks, Calif.; said Theobald assignor to said Coon
Filed Dec. 16, 1969, Ser. No. 20,525
Term of patent 14 years
The portion of the term of the patent subsequent to Apr. 21, 1984, has been disclaimed
Int. Cl. D8—*05*
U.S. Cl. D8—90

225,721
DRAWER PULL
William Doyle Watt, Jr., Grand Rapids, Mich., assignor to Keeler Brass Company, Grand Rapids, Mich.
Filed June 28, 1971, Ser. No. 157,816
Term of patent 14 years
Int. Cl. D8—*06*
U.S. Cl. D8—159

225,722
ENTRY HANDLE
Raymond U. H. Tegner, Rockford, Ill., assignor to Amerock Corporation, Rockford, Ill.
Filed June 1, 1971, Ser. No. 149,132
Term of patent 14 years
Int. Cl. D8—*06*
U.S. Cl. D8—162



225,723
WIRE REEL
Clifford A. Hallowell, Fairfield, Idaho 83327
Filed Apr. 5, 1971, Ser. No. 131,562
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—222

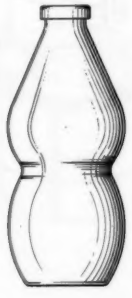


225,724
BOTTLE
Gordon A. Strand, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio
Filed Oct. 12, 1971, Ser. No. 188,642
Term of patent 7 years
Int. Cl. D9—*01*
U.S. Cl. D9—39

225,725
BOTTLE OR SIMILAR ARTICLE
Floyd E. Pettengill, Lancaster, Ohio, assignor to Anchor Hocking Corporation, Lancaster, Ohio
Filed Oct. 29, 1970, Ser. No. 25,719
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—100

225,726
BOTTLE
Norman L. Auslander, Pomona, N.Y., assignor to Lander Co., Inc., New York, N.Y.
Filed Apr. 21, 1971, Ser. No. 136,280
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—115

225,727
BOTTLE OR SIMILAR ARTICLE
Floyd E. Pettengill, Lancaster, Ohio, assignor to Anchor Hocking Corporation, Lancaster, Ohio
Filed Oct. 29, 1970, Ser. No. 25,717
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—118



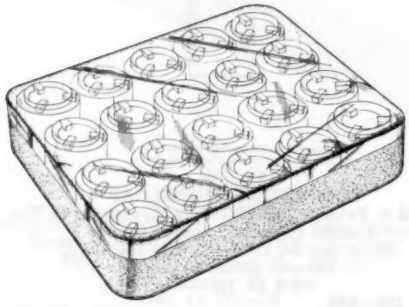
225,728
BOTTLE
Edward J. Kretz, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio
Filed Aug. 3, 1971, Ser. No. 168,789
Term of patent 7 years
Int. Cl. D9—*01*
U.S. Cl. D9—136

225,729
BOTTLE
Ira W. Schwartz, Great Neck, N.Y., assignor to Shulton, Inc., Clifton, N.J.
Filed Sept. 21, 1970, Ser. No. 25,073
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—147

225,730
COMBINED JAR AND CAP
Ronald A. Peterson, New York, N.Y., assignor to The Gillette Company, Boston, Mass.
Filed Jan. 14, 1971, Ser. No. 106,625
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—153

225,731
DISPENSER COVER FOR A PRESSURIZED CONTAINER
John C. Louise, Englewood, N.J., assignor to Clairol Incorporated, New York, N.Y.
Filed May 12, 1971, Ser. No. 142,854
Term of patent 14 years
Int. Cl. D9—*07*
U.S. Cl. D9—258

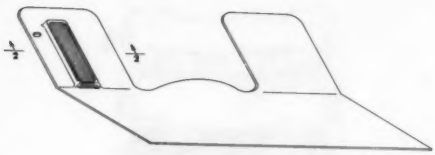
225,732
INCANDESCENT MANTLE PACKAGE
Wilhelm Waldmann, Berlin, Germany, assignor to Auergesellschaft GmbH., Friedrich-Krause-Ufer, Germany
Filed Feb. 9, 1970, Ser. No. 21,334
Claims priority, application Germany Aug. 8, 1969
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—177



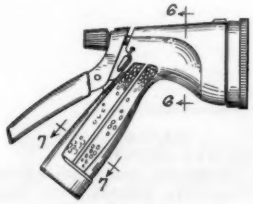
225,733
DISPENSING COVER FOR A PRESSURIZED CONTAINER
John C. Louise, Englewood, N.J., assignor to Clairol Incorporated, New York, N.Y.
Filed May 12, 1971, Ser. No. 142,855
Term of patent 14 years
Int. Cl. D9—*07*
U.S. Cl. D9—258

225,734
DOOR
William J. Horgan, Jr., Pittsburgh, Pa., assignor to Blumcraft of Pittsburgh, Pittsburgh, Pa.
Original design application June 1, 1970, Ser. No. 23,254. Divided and this application June 17, 1971, Ser. No. 154,244
Term of patent 14 years
Int. Cl. D25—*02*
U.S. Cl. D13—1

225,735
VEHICLE FLOORBOARD COVER OR THE LIKE
Hyman D. Bowman, 801 W. Morgan St., Raleigh, N.C. 27603
Filed Dec. 29, 1969, Ser. No. 20,679
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D14—5

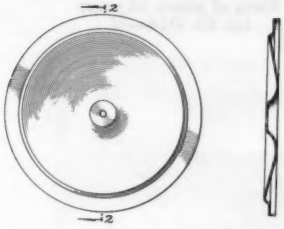


225,736
HOSE NOZZLE
Joseph R. Mango, Midlothian, and Robert M. Goodman, Morton Grove, Ill., assignors to Sears, Roebuck and Co., Chicago, Ill.
Filed Feb. 2, 1971, Ser. No. 112,105
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—37

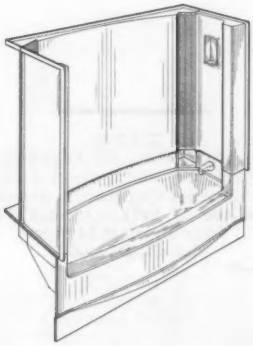


225,737
PORTABLE COMMODE
Paul T. Winters, Arvada, Colo., assignor to Development Industries, Inc., Lakewood, Colo.
Filed May 6, 1970, Ser. No. 22,842
Term of patent 14 years
Int. Cl. D23—*02*
U.S. Cl. D23—48

225,738
AIR CLEANER COVER
Edwin L. Schwartz, Los Angeles, Calif., assignor to Rite Autotronics Corporation, Los Angeles, Calif.
Filed June 17, 1970, Ser. No. 23,538
Term of patent 14 years
Int. Cl. D23—*04*
U.S. Cl. D23—149

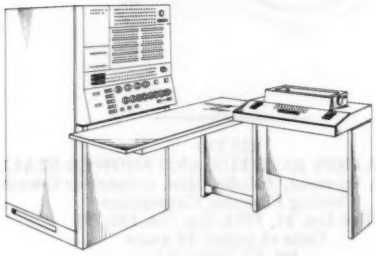


225,739
COMBINATION BATHTUB AND SHOWER STALL
Merritt W. Seymour, Toledo, Ohio, assignor to Owens-Corning Fiberglas Corporation
Filed Jan. 11, 1971, Ser. No. 105,791
Term of patent 14 years
Int. Cl. D23—*02*
U.S. Cl. D23—49

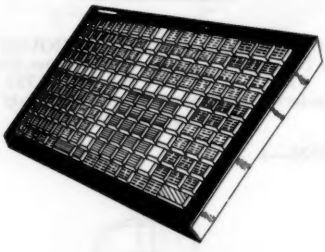


225,740
ELECTRICAL CONNECTOR HOUSING
Alan Thompson, 3 Butler Ave., Harrow, England
Filed Dec. 22, 1970, Ser. No. 26,732
Claims priority, application Great Britain July 27, 1970
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D26—1

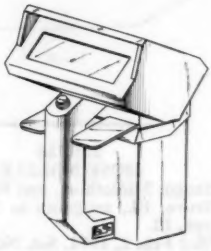
225,741
ELECTRONIC DATA PROCESSING CONSOLE UNIT
Loring C. Bixler, Donald F. Lahey, and Edward R. Wiener, Binghampton, and Arnold M. Davis and Walter S. McCormick, Jr., Poughkeepsie, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed June 23, 1970, Ser. No. 23,906
Term of patent 14 years
Int. Cl. D14—*02*
U.S. Cl. D26—5



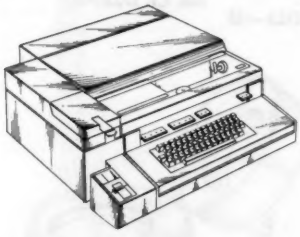
225,742
DATA KEYBOARD CONSOLE
John Davis Sims, Cary, N.C., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Aug. 27, 1971, Ser. No. 175,811
Term of patent 14 years
Int. Cl. D14—*02*
U.S. Cl. D26—5



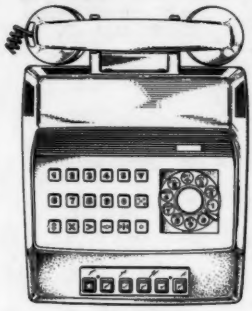
225,743
REMOTE VISUAL READOUT DEVICE
Daniel A. Seltzer, Hamilton, Ohio, assignor to Gamon-Calmet Industries, Inc., Florence, Ky.
Filed Mar. 16, 1971, Ser. No. 125,003
Term of patent 14 years
Int. Cl. D14—*02*
U.S. Cl. D26—5



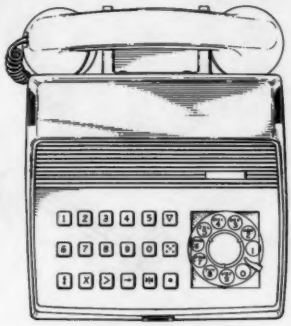
225,744
DATA PRINTER
Bernhard Cramer, Pforzheim, and Louis Lucien Lepoix, Baden-Baden, Germany, assignors to International Standard Electric Corporation, New York, N.Y.
Filed Oct. 6, 1970, Ser. No. 25,361
Claims priority, application Germany Apr. 16, 1970
Term of patent 14 years
Int. Cl. D14—*02*
U.S. Cl. D26—5

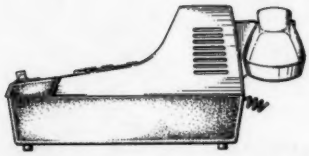


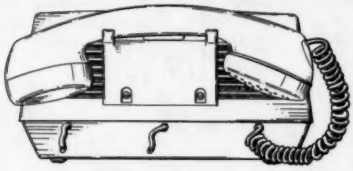
225,745
COMBINED PUSH BUTTON TELEPHONE AND INTERCOMMUNICATION UNIT
Lars H. Haaheim and Tore Schiefloe, both of 2500 81st SE., Mercer Island, Wash. 98040
Filed Aug. 25, 1971, Ser. No. 175,027
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14



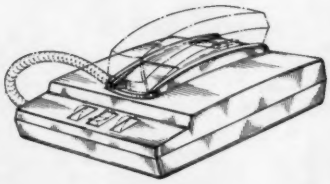
225,747
COMBINED DIAL TELEPHONE AND INTERCOMMUNICATION UNIT
Lars H. Haaheim and Tore Schiefloe, both of 2500 81st SE., Mercer Island, Wash. 98040
Filed Aug. 25, 1971, Ser. No. 175,026
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14



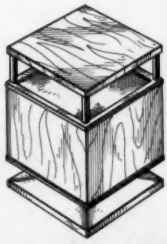




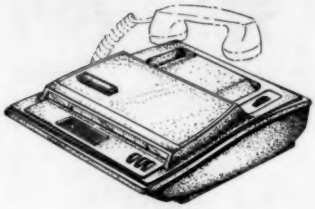
225,746
HOUSING FOR TELEPHONE ANSWERING DEVICE
Joseph B. Federico, Rochester, N.Y., assignor to Ford Industries, Inc., Portland, Oreg.
Filed Sept. 4, 1969, Ser. No. 19,022
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14



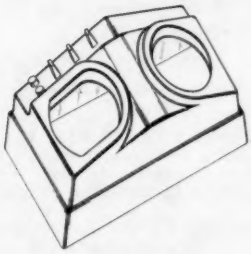
225,748
RECTANGULAR LOUDSPEAKER UNIT
Melvin H. Boldt, Glenview, David P. Chuboff, North Barrington, and Margaret McCauley, Arlington Heights, Ill., assignors to Zenith Radio Corporation, Chicago, Ill.
Filed Oct. 21, 1971, Ser. No. 191,311
Term of patent 7 years
Int. Cl. D14—*01*
U.S. Cl. D26—14

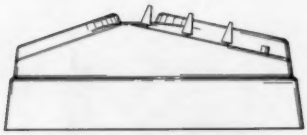


225,749
TELEPHONE ANSWERING DEVICE HOUSING
Kenneth A. Catto, 4640 NW. Malhuer, Portland, Oreg. 97229, and Harold R. Burt, 5550 SW. Cherry Ave., Beaverton, Oreg. 97005
Filed Feb. 4, 1971, Ser. No. 112,839
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14



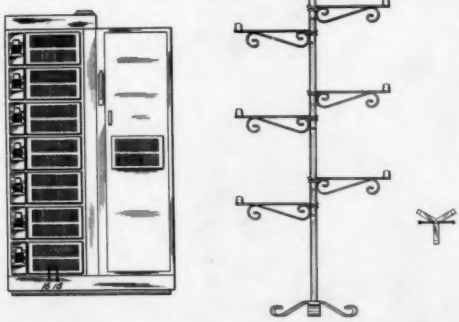
225,750
ACOUSTIC COUPLER
Joseph P. Marsalka, 4211 Woodbridge 43221, and Richard D. Fretwell, 1891 Willoway Circle N. 43220, both of Columbus, Ohio
Continuation-in-part of design application Ser. No. 22,893, May 8, 1970. This application June 17, 1971, Ser. No. 154,268
Term of patent 7 years
Int. Cl. D14—*03*
U.S. Cl. D26—14



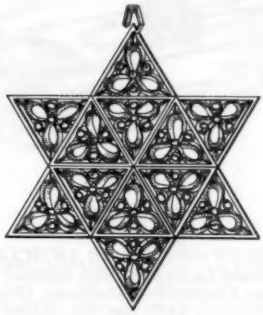


225,751
ALTERNATING TO DIRECT CURRENT CONVERTER
Thomas N. Urquhart, Troy, Michael A. Koltuniak, Warren, and Robert G. Plantholt, Rochester, Mich., assignors to Controlled Power Corporation, Farmington, Mich.
Original design application July 18, 1969, Ser. No. 18,274, now Patent No. 222,146, dated Oct. 5, 1971. Divided and this application Oct. 12, 1970, Ser. No. 25,454
Term of patent 14 years
Int. Cl. D13—*02*
U.S. Cl. D26—15

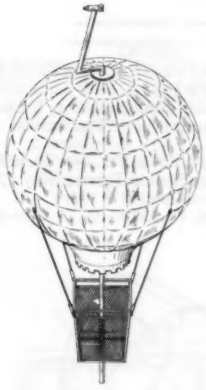
225,752
DISPLAY STAND FOR WIG BLOCKS
Myron E. Mencimer, Rte. 5, P.O. Box 778, Golden, Colo. 80401
Filed Mar. 17, 1971, Ser. No. 125,446
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—28



225,753
CHRISTMAS ORNAMENT
Dario Moranduzzo, Strada Tosco Romagnola 463, Florence, Italy
Filed May 28, 1971, Ser. No. 148,288
Claims priority, application Italy Dec. 1, 1970
Term of patent 7 years
Int. Cl. D11—*05*
U.S. Cl. D29—1



225,754
PASSENGER CAB FOR AMUSEMENT RIDE
Samuel P. Goforth and Joseph A. Goforth, Shelby, N.C., assignors to Goforth Brothers, Inc., Shelby, N.C.
Filed Mar. 17, 1971, Ser. No. 125,462
Term of patent 14 years
Int. Cl. D21—*03*
U.S. Cl. D34—5

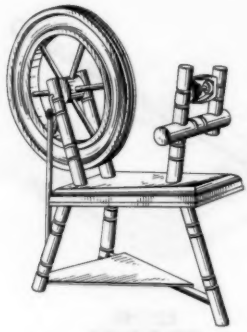


225,755
TWIRLING BATON
John F. Hale, 3729 Greenbay Drive 45415, and Frederick J. Miller, 2150 E. Rahn Road 45440, both of Dayton, Ohio
Filed May 21, 1971, Ser. No. 145,984
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—5

225,756
GOLF TOOL
James H. Stephens, 432 Blackstone Drive, Erie, Pa. 16505, and Richard D. Grunert, 150 Buckland Ave., Rochester, N.Y. 14618
Filed June 1, 1971, Ser. No. 149,131
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D34—5

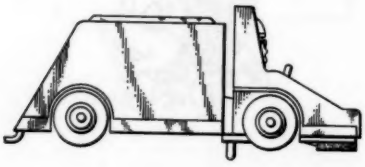
225,757
TOY BANK
Donald M. Levine, Providence, R.I., assignor to Hasbro Industries, Inc., Pawtucket, R.I.
Filed Aug. 9, 1971, Ser. No. 170,407
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—11

225,758
TOY SPINNING WHEEL
Clarence W. Proper, 3120 Garfield Ave. S., Minneapolis, Minn. 55408
Filed Feb. 16, 1971, Ser. No. 115,928
Term of patent 14 years
Int. Cl. D15—*06*
U.S. Cl. D34—15

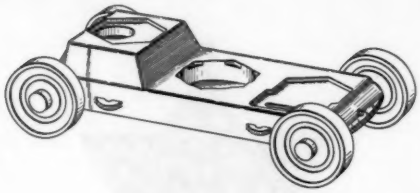


225,759
ROCKING HORSE PLAYTHING
Clarence C. Holman, River Road, R.D. 2, Lower Bank, N.J. 08215
Filed Feb. 18, 1971, Ser. No. 116,733
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15

225,760
TRACK CLEANING CAR
Jerry J. Broz, 1202 Vine St., Scranton, Pa. 18510
Filed Mar. 3, 1971, Ser. No. 120,796
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15



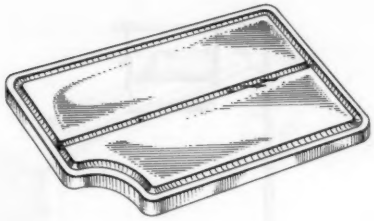
225,761
VEHICLE TOY
David E. Munn, Framingham, Thomas M. Mello, West Roxbury, and Robert Maddestra, Hyde Park, Mass., assignors to Damon Corporation, Needham, Mass.
Filed Mar. 29, 1971, Ser. No. 129,325
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15



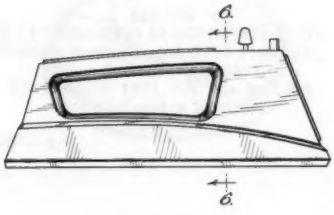
225,762
TUMBLER OR SIMILAR ARTICLE
James William Hale, Lancaster, Ohio, assignor to Anchor Hocking Corporation, Lancaster, Ohio
Filed Oct. 5, 1970, Ser. No. 25,336
Term of patent 14 years
Int. Cl. D7—*01*
U.S. Cl. D36—8

225,763
COMBINED BRACELET AND RIDER FOR A WATCH CASE
Francois de Baschmakoff, Fontainebleau, France, assignor to Lip Societe Anonyme d'Horlogerie, Besancon-Palente, France
Filed Nov. 12, 1970, Ser. No. 25,939
Claims priority, application France May 13, 1970
Term of patent 7 years
Int. Cl. D10—*07*
U.S. Cl. D42—1

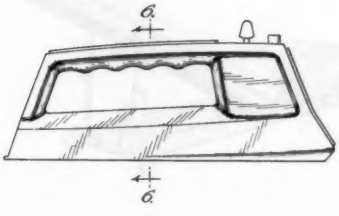
225,764
MEAT CARVING BOARD
Willard John Duecker, Stockton, Calif., assignor of a fractional part interest to Don F. Drieschman
Filed Jan. 13, 1971, Ser. No. 106,314
Term of patent 14 years
Int. Cl. D7—*04*
U.S. Cl. D44—1



225,765
UPPER HOUSING FOR AN ELECTRIC HAND MIXER
Richard B. Hall, Glen Ellyn, Ill., assignor to Sunbeam Corporation, Chicago, Ill.
Filed June 24, 1971, Ser. No. 156,585
Term of patent 14 years
Int. Cl. D7—*04*
U.S. Cl. D44—1

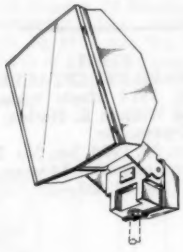


225,766
UPPER HOUSING FOR AN ELECTRIC HAND MIXER
Richard B. Hall, Glen Ellyn, Ill., assignor to Sunbeam Corporation, Chicago, Ill.
Filed July 27, 1971, Ser. No. 156,586
Term of patent 14 years
Int. Cl. D7—*04*
U.S. Cl. D44—1



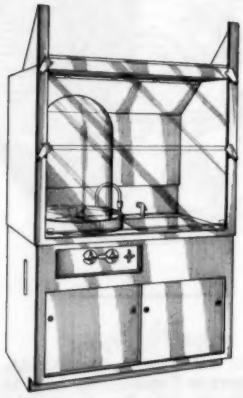
225,767
PLATE
Carl J. Uhrmann, % Imperial Glass Corporation, Bellaire, Ohio
Filed May 12, 1971, Ser. No. 142,856
Term of patent 14 years
Int. Cl. D7—*01*
U.S. Cl. D44—15

225,768
LIGHT FIXTURE
Jose A. Hernandez and Glen H. McReynolds, Jr., Houston, Tex., assignors to Esquire, Inc., New York, N.Y.
Filed May 20, 1971, Ser. No. 145,597
Term of patent 14 years
Int. Cl. D26—*03*
U.S. Cl. D48—20



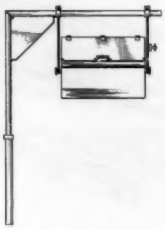
225,769
BASE FOR OUTDOOR LIGHTING FIXTURE
William F. Harris, Jr., 6256 Deveron Drive, Charlotte, N.C. 28211
Filed Feb. 22, 1971, Ser. No. 117,874
Term of patent 7 years
Int. Cl. D26—*03*
U.S. Cl. D48—31

225,770
BELL JAR CLEANER
Francis Kelso, Los Angeles, and Arnold J. Gustin, Glendale, Calif., assignors to Integrated Air Systems, Inc., Burbank, Calif.
Filed Feb. 22, 1971, Ser. No. 117,8[illegible]
Term of patent 7 years
Int. Cl. D15—*99*; D24—*01*
U.S. Cl. D49—11



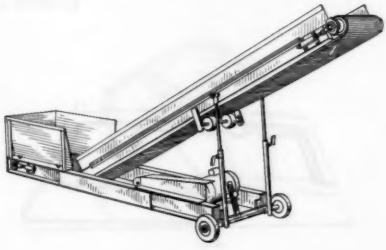
225,771
TRASH RECEPTACLE
Philip M. Baldwin, 2514 Maple Spring Blvd., Dallas, Tex. 75235, and William E. Harlan, 204 N. Rockhill Road, Webster Groves, Mo.
Filed Apr. 22, 1970, Ser. No. 22,552
Term of patent 14 years
Int. Cl. D7—*05*
U.S. Cl. D49—30

225,772
COMBINED TRASH CONTAINER AND SUPPORT THEREFOR
Larry L. Stillinger, 2603 Washington St., Columbus, Ind.
Filed May 19, 1971, Ser. No. 145,095
Term of patent 14 years
Int. Cl. D7—*05*
U.S. Cl. D49—34

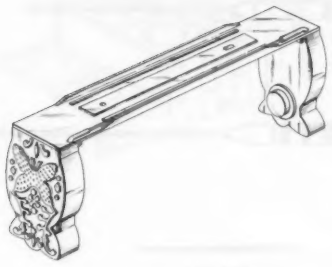


225,773
DIETARY CALORIE TOTALIZER
Lester L. Westling, 37 Hillwood Place, Oakland, Calif. 94610
Filed Apr. 26, 1971, Ser. No. 137,743
Term of patent 7 years
Int. Cl. D18—*01*
U.S. Cl. D52—6

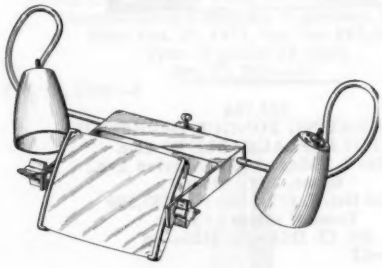
225,774
CONVEYOR
Charles N. Hannon, Olathe, Kans., assignor to Warren W. Hannon, Olathe, Kans.
Filed Apr. 12, 1971, Ser. No. 133,455
Term of patent 14 years
Int. Cl. D15—*03*
U.S. Cl. D55—1



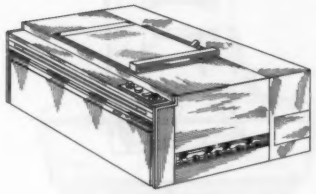
225,775
COMBINED PAPER TOWEL HOLDER AND RADIO
Josephine R. Louis, Los Angeles, Calif.
(P.O. Box 534, New Town, N. Dak. 58763)
Filed Apr. 26, 1971, Ser. No. 137,732
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D56—4



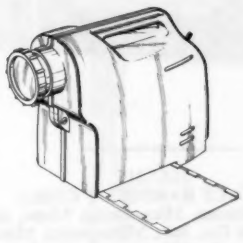
225,776
ILLUMINATED MAGNIFIER UNIT
William Jordan Siegel, 9337 Fraser St.,
Silver Spring, Md. 20910
Filed July 8, 1971, Ser. No. 160,984
Term of patent 14 years
Int. Cl. D16—*06*
U.S. Cl. D57—1



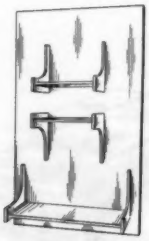
225,777
ELECTRO-STATIC COPYING MACHINE
Shunichiro Kakii, Tokyo, Japan, assignor to Iwatsu
Electric Co., Ltd., Tokyo, Japan
Filed Oct. 5, 1970, Ser. No. 25,345
Claims priority, application Japan Apr. 11, 1970
Term of patent 7 years
Int. Cl. D16—*03*
U.S. Cl. D61—1



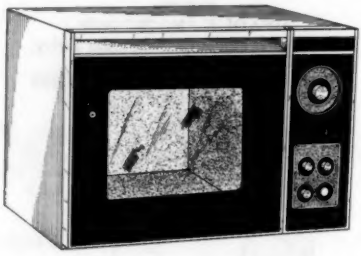
225,778
OPAQUE PROJECTOR
Curtiss M. Peasley, 25 Boulder Drive,
Burlington, Mass. 01803
Filed July 30, 1971, Ser. No. 167,890
Term of patent 14 years
Int. Cl. D16—*02*
U.S. Cl. D61—1



225,779
DISPLAY RACK
Thomas R. Viviano and John C. Troy, Tampa, and Ronn Ginn, Treasure Island, Fla., assignor to Tampa Stereo Center, Inc., Tampa, Fla.
Filed Aug. 27, 1970, Ser. No. 24,723
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D80—9

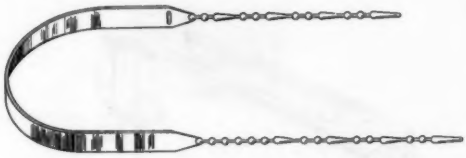


225,780
PORTABLE MICROWAVE OVEN OR SIMILAR ARTICLE
Thomas J. Binzer, Charles H. Schmitt, and Peter H. Wooding, Jefferson County, Ky., assignors to General Electric Company
Filed Aug. 26, 1970, Ser. No. 24,693
Term of Patent 14 years
Int. Cl. D7—*02*
U.S. Cl. D81—4

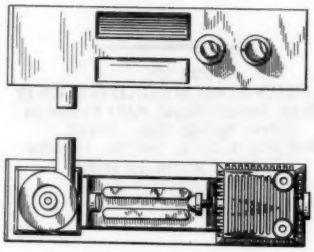


225,781
COMPACT BARBECUE GRILL
Merlin W. Ehrlichmann, Minnetonka, Minn., assignor to West Creek Co., Inc., Minnetonka, Minn.
Filed Jan. 7, 1971, Ser. No. 104,845
Term of patent 14 years
Int. Cl. D7—*02*
U.S. Cl. D81—10

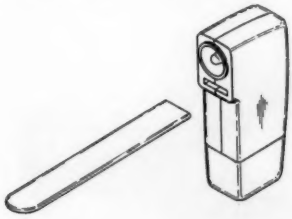
225,782
MASK STRAP
William R. King, Denver, Colo., and Stuart J. Safft, West Orange, N.J., assignors to Sandoz-Wander, Inc., Hanover, N.J.
Continuation-in-part of design application Ser. No. 144,383, May 17, 1971. This application Nov. 16, 1971, Ser. No. 199,398
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D83—1



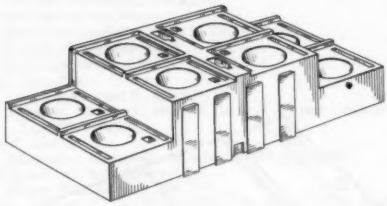
225,783
HYDROTHERAPY UNIT
Samuel L. McNair, Overland Park, Kans., assignor to The Songrand Corporation
Filed Dec. 14, 1970, Ser. No. 26,486
Term of patent 14 years
Int. Cl. D24—*01, 99*
U.S. Cl. D83—1

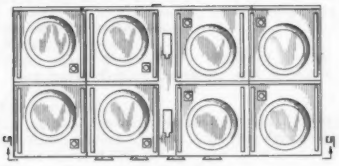


225,784
ILLUMINATING TONGUE DEPRESSOR WITH REPLACEABLE BLADE
Ladislav L. Edinger, 1084 Allerton Ave., Bronx, N.Y. 10469
Filed Oct. 7, 1971, Ser. No. 187,590
Term of patent 14 years
Int. Cl. D24—*02;* D26—*04*
U.S. Cl. D83—12

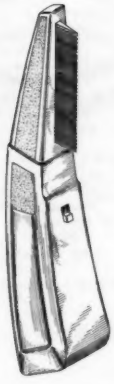


225,785
MEDICATION TRAY
David B. Geddis, Somerville, N.J., assignor to Johnson & Johnson
Filed Aug. 19, 1971, Ser. No. 173,344
Term of patent 14 years
Int. Cl. D24—*02, 99*
U.S. Cl. D83—1

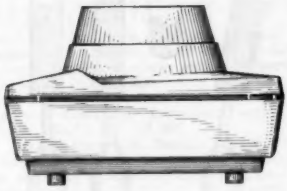




225,786
HAIR DRYING AND STYLING COMB
Monte L. Levin, New York, N.Y., assignor to Scovill Manufacturing Company, Waterbury, Conn.
Filed Oct. 20, 1971, Ser. No. 191,144
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D86—8

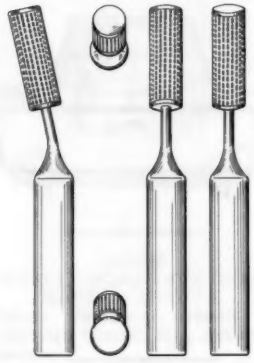


225,787
KITCHEN BLENDER BASE
Monte L. Levin, New York, N.Y., assignor to Scovill Manufacturing Company, Waterbury, Conn.
Filed Apr. 30, 1971, Ser. No. 139,313
Term of patent 14 years
Int. Cl. D7—*04*
U.S. Cl. D89—1

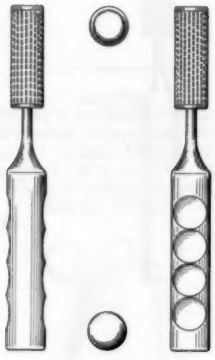


225,788
ELECTRIC RAZOR
Bernd Rohrbach, Kettenhofweg 80, Frankfurt am Main, Germany
Filed Jan. 20, 1971, Ser. No. 108,239
Claims priority, application Germany July 24, 1970
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D95—3

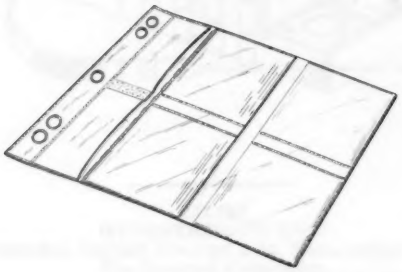
225,789
ELECTRIC RAZOR
Bernd Rohrbach, Kettenhofweg 80, Frankfurt am Main, Germany
Filed Jan. 20, 1971, Ser. No. 108,240
Claims priority, application Germany July 24, 1970
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D95—3



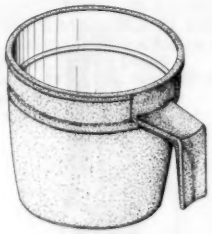
225,790
ELECTRIC RAZOR
Bernd Rohrbach, Kettenhofweg 80, Frankfurt am Main, Germany
Filed Jan. 20, 1971, Ser. No. 108,241
Claims priority, application Germany July 24, 1970
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D95—3



225,791
TRANSPARENT PHOTOGRAPH ALBUM PAGE
Robert Nast, 942 Glenridge Ave., North Woodmere, N.Y. 11598
Filed Feb. 28, 1972, Ser. No. 230,200
Term of patent 14 years
Int. Cl. D19—*04*
U.S. Cl. D97—1



225,792
CUP
Richard K. Fritsche, Fort Thomas, Ky., and Bernard J. Niemann, Cincinnati, Ohio, assignors to The Miami Margarine Company, Cincinnati, Ohio
Filed Apr. 10, 1972, Ser. No. 242,881
Term of patent 14 years
Int. Cl. D7—*01*
U.S. Cl. D44—9



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 2D DAY OF JANUARY, 1973

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

: *See—*
Hildenbrand, Walter W.; Levine, Wilbur J.; Manning, Stanley A.; and Stroms, Karl F., 3,708,798.

A-T-O Inc.: *See—*
Presnell, William R., 3,708,170.

Abbott Laboratories: *See—*
Plotnikoff, Nicholas Peter, 3,708,585.
Plotnikoff, Nicholas Peter, 3,708,593.
Roderick , William Rodney, 3,708,581.

Abcor, Inc.: *See—*
Crowley, Richard P., 3,708,071.
Timmins, Robert S.; Horton, Bernard S.; and Goldsmith, Robert L., 3,707,770.

Abe, Koichi: *See—*
Murayama, Masayuki; and Abe, Koichi, 3,708,524.

ACF Industries, Incorporated: *See—*
Dugge, Richard H., 3,708,209.

Acker, Richard C., to Weatherhead Company, The. Welding head drive unit. 3,708,647, Cl. 219-60.00a.

Ackermann, Herman, to Velten & Pulver, Inc. Convey system and attachments therefor. 3,708,059, Cl. 198-189.000.

Adamas Carbide Corporation: *See—*
Scheyer, Gerard, 3,708,285.

Adams, Richard J.: *See—*
Brafford, Donald A.; and Adams, Richard J., 3,707,752.

Adamson, James Sidney. Continuous feed head drill assembly. 3,708,020, Cl. 173-7.000.

Addressograph-Multigraph Corporation: *See—*
Lux, George K.; Ellis, James B.; and Schulze, John J., 3,708,161.

Adler, Franklin P., to Pullman Transport Leasing Company. Railroad hopper car with flexible hatch cover. 3,707,919, Cl. 105-377.000.

AGA Aktiebolag: *See—*
Unger, Hans Peter Olof; Westberg, Johan Eric Hayden; Berndtsson, Gunnar Ingemar; and Schwartz, Stephan Lars, 3,708,110.

Agfa-Gevaert: *See—*
Poot, Albert Lucien; and Hazenbosch, Edwin Hendrik, 3,708,297.
Vanreusel, Gerard Laurens; Van Pee, Paul Desire; and De Laet, Jules Maria, 3,708,298.

Agfa-Gevaert Aktiengesellschaft: *See—*
Engelsmann, Dieter; Kessler, Fritz; Mass, Dieter; and Zattler, Kurt, 3,707,904.
Geyken, Erwin; Krauss, Siegfried; Kocourek, Franz; Koninger, Horst; and Schwarzmaier, Gerhard, 3,707,777.

Aichenegg, Paul C.; and Thornhill, Richard A., to Raychem Corporation, mesne. Methods of combatting fungi, nematodes and insects with sulfinyl thiol- and dithiophosphates. 3,708,582, Cl. 424-208.000.

Aikoh Co., Ltd.: *See—*
Kishida, Tohru; Arikawa, Tadashi; Matsuyama, Shigeru; and Fukushige, Shinobu, 3,708,314.

Air Products and Chemicals, Inc.: *See—*
Bechara, Ibrahim S.; De La Mater, George B.; and Milligan, Barton, 3,708,533.
Lindemann, Martin K.; and Iacoviello, John G., 3,708,388.

Air Reduction Company, Incorporated: *See—*
Shattes, Walter J.; Marancik, William G.; and Kirk, Bradley S., 3,708,606.

Airpax Electronics Incorporated: *See—*
Shand, John R.; and Reid, William H., 3,708,723.

Aisin Seiki Company, Limited: *See—*
Torri, Tatsumi; Kozakai, Asao; Yamamoto, Takekazu; and Nyunoya, Mizuo, 3,708,044.

Aisin Seiki Kabushiki Kaisha: *See—*
Asano, Tadao; and Murakami, Noboru, 3,707,891.
Ueda, Atumi, 3,708,030.

Akito, Eiichiro; Takagi, Toshitsugu; Soda, Yakio; and Ishibashi, Masataka, to Nippon Kayaku Co., Ltd. Process for manufacturing a preparation containing finely divided chloramphenicol palmitate. 3,708,594, Cl. 424-324.000.

Akiyama, Yuji; Ishii, Yasuyoshi; Ozawa, Shigeo; and Takeshima, Saburo, to Tokyo Shibaura Electric Co., Ltd. Magnetic core elements for rotating electrical machines. 3,708,706, Cl. 310-216.000.

Aktiebolaget Bahco Ventilation: *See—*
Gustavsson, Karl Axel Goran, 3,708,266.
Gustavsson, Karl-Axel, 3,707,830.

Aktiebolaget Svenska Flaktfabriken: *See—*
Kaltin, Berndt, 3,707,775.

Aktiengesellschaft Brown, Boveri & Cie: *See—*
Faust, Werner, 3,708,732.
Kranz, Rolf-Dieter, 3,708,707.

Albany International Corporation, mesne: *See—*
Lesher, Elroy W., 3,708,088.

Alberino, Louis M.; Farrissey, William J., Jr.; and Rose, James S., to Upjohn Company, The. Copolyimides of benzophenone tetracarboxylic acid dianhydride and mixture of diisocyanates. 3,708,458, Cl. 260-65.000.

Alderson Research Laboratories, Inc.: *See—*
Alderson, Samuel W., 3,707,782.

Alderson, Samuel W., to Alderson Research Laboratories, Inc. Neck for test dummy. 3,707,782, Cl. 35-17.000.

Aldrich, Paul Edward; and Hermann, Edward Charles. Compositions and methods of use for preventing pregnancy in warm-blooded animals using 4-phenyl-bicyclo 2.2.2 octane, and oct-2-ene,-1-carboxylates. 3,708,588, Cl. 424-317.000.

Alexander, David George; Lloyd, Anthony Michael; Greensides, Geoffrey Charles; and Thompson, David Harry, to Rose, Down & Thompson Limited. Separation of wax and oil by fractional crystallization. 3,708,512, Cl. 260-412.800.

Alexander, Harold M.; Mattimoe, Paul T.; and Hofmann, John J., to Libbey-Owens-Ford Company. Laminated safety float glass windshields. 3,708,386, Cl. 161-165.000.

Alexandrovsky, Nikolai Ivanovich; Pronko, Vadim Fomich; Perepechkin, Mikhail Ivanovich; and Amelchenko, Petr Adamovich. Arrangement for mounting agricultural implements on a tractor ith rocking side transmissions. 3,708,017, Cl. 172-239.000.

Alie, Gerald, to McConnell, R. H., & Co., Ltd. Medallion applying machine. 3,708,371, Cl. 156-363.000.

Allen-Bradley Company: *See—*
Burton, Lawrence A.; and Hennings, George W., 3,708,725.
Wielebski, Wayne H.; and Ray, Glen, 3,708,727.

Allgeyer, Earl R.: *See—*
Holmberg, Joyce D.; and Allgeyer, Earl R., 3,708,155.

Allied Chemical Corporation: *See—*
Carr, Robert D.; Collier, Harry T.; and Jones, Clarence E., 3,707,859.
Fuhrmann, Robert; Pisanchyn, John; and Sifniades, Stylianos, 3,708,595.
Fujimoto, Edward K.; Buckman, Walter R.; and Grezlikowsii, Edmund J., 3,708,339.

Allred, James K.: *See—*
Richens, Kenneth A.; Grover, Scott C.; Allred, James K.; and Shook, James H., 3,708,077.

Alsthom-Savoisienne: *See—*
Lesueur, Gilbert, 3,708,747.

Altenburger, Otto, to Stromberg-Carlson Corporation. Plug-in line circuit arrangement. 3,708,627, Cl. 179-18.00f.

Aluminum Company of America: *See—*
Brown, Robert H.; Brown, Melvin H.; and Shumaker, Murray Byron, 3,708,352.

Alza Corporation: *See—*
Zaffaroni, Alejandro, 3,708,492.

Amano, Yasuji: *See—*
Nishino, Atsushi; Kumano, Hiroshi; Noguchi, Yoshinori; Sonetaka, Kazunori; and Amano, Yasuji, 3,708,408.

Amelchenko, Petr Adamovich: *See—*
Alexandrovsky, Nikolai Ivanovich; Pronko, Vadim Fomich; Perepechkin, Mikhail Ivanovich; and Amelchenko, Petr Adamovich, 3,708,017.

American Can Company: *See—*
Schlesinger, Sheldon Irwin, 3,708,296.

American Cyanamid Company: *See—*
Meyers, Marion Douglas; and Augurt, Thomas Anthony, 3,708,220.
Miller, Bernard; and English, Jackson Pollard, 3,708,580.

American Hospital Supply Corporation: *See—*
Yindra, Leonard J.; and Klug, Joseph R., 3,707,930.

American Seating Company: *See—*
Barecki, Chester J.; and Lindberg, William S., 3,708,202.
Barecki, Chester J.; and Nordmark, Walter E., 3,708,203.

American Stair Corporation: *See—*
Seegers, Glen A., 3,707,814.

American Standard Inc.: *See—*
Fort, George E., 3,707,921.

American Velcro, Inc.: *See—*
Erb, George H., 3,708,382.

Ameripol, Inc.: *See—*
Beuther, Harold; and Swift, Harold E., 3,708,550.

Amit, Aster Ma. Vehicle safety apparatus. 3,708,194, Cl. 293-1.000.

AMP Domestic, Inc.: *See—*
Dinger, Leon Joel, 3,708,149.

AMP Incorporated: *See—*
Dinger, Leon Joe, 3,708,611.
Murray, Robert Maclay, 3,707,932.

Ampex Corporation: *See—*
Hedin, Jan S., 3,708,783.

Amrehn, Hermann: *See—*
Dietrich, Johannes; Wolff, Oswald; Amrehn, Hermann; and Beckmann, Gunter, 3,708,465.

Amsted Industries, Incorporated: *See—*
Andreotti, Eugene R.; and McGee, Sherwood W., 3,708,281.
Aull, Louis J.; and Gritt, William E., 3,708,065.
Radwill, Robert P., 3,708,076.

Anaconda American Brass Company: *See—*
Rowell, Douglas Whitman, 3,708,354.

Anaconda Wire and Cable Company: *See—*
Davis, Charles H., 3,708,112.

Anchor Hocking Corporation: *See—*
Schaefer, Howard A., 3,708,221.

Anderson, Earl R., to Brex Corporation. Shuffle feed mechanism. 3,708,053, Cl. 198-30.000.

Anderson Electric Corporation: *See—*
Saxon, James B.; and Dunn, Jackei J., Sr., 3,708,612.

Anderson, Kent V.: *See—*
Macaulay, William R.; Bilhorn, John M.; and Anderson, Kent V., 3,708,349.

Anderson, Paul L.; Houlihan, William J.; and Manning, Robert E., to Sandoz-Wander, Inc. Amino and substituted amino-s-triazolo-(4,3-b)-pyridazines. 3,708,484, Cl. 260-250.00a.

Anderson, Richard W.; and Frick, Hughie R., to Dow Chemical Company, The. Synthesis of polymers from s-triazines and perfluoro-vinyl ethers. 3,708,483, Cl. 260-248.0cs.

Ando, Kazuhiko; Omino, Teiji; and Imamura, Kennosuke, to Sankyo Company Limited and Nippon Chemical Industrial Company, Limited. Phosphorus acid esters and method for combatting insects therewith. 3,708,557, Cl. 260-940.000.

Andree, Franz; Burkhardt, Hans; and Riedel, Guenther, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Rhodamine dyes which are sparingly soluble or insoluble in water. 3,708,499, Cl. 260-336.000.

Andreotti, Eugene R.; and McGee, Sherwood W., to Amsted Industries, Incorporated. Structural alloy steel containing copper and other alloy elements. 3,708,281, Cl. 75-124.000.

Andrews Paper & Chemical Co., Inc.: *See—*
Muller, Peter, 3,708,301.

Angeleri, Emanuele; Bonatti, Mario; Costa, Gianmario; and Boretti, Isidoro, to Societa Italiana Telecomunicazioni Siemens S.p.A. Circuit arrangement for utilizing idle channels of multiplex telecommunication system for data. 3,708,625, Cl. 179-15.0by.

Annas, Robert F., to Paramount Health Equipment Corporation. Butterfly exercise machine. 3,708,166, Cl. 272-58.000.

Anner, Georg; and Wieland, Peter, to Ciba-Geigy Corporation. A-Homo-Δ'(10),2,4a(5)-3-substituted-estratrien-4-ones. 3,708,503, Cl. 260-340.900.

Aoyagi, Hirokuni: *See—*
Menju, Shinichi; and Aoyagi, Hirokuni, 3,708,774.

Appleman, Milo Don. Composition using psyllium by-products for pet foods. 3,708,306, Cl. 99-2.00r.

Aqua-Chem, Inc.: *See—*
Clark, George B., 3,708,069.

ARA Inc.: *See—*
Mazelsky, Bernard, 3,708,181.

Araki, Kazumi: *See—*
Nakayama, Kiyoshi; and Araki, Kazumi, 3,708,395.

Arikawa, Tadashi: *See—*
Kishida, Tohru; Arikawa, Tadashi; Matsuyama, Shigeru; and Fukushige, Shinobu, 3,708,314.

Asahi Kasei Kogyo Kabushiki Kaisha: *See—*
Senoo, Saburo; Kato, Toshio; and Kimura, Hiroshi, 3,708,519.

Asahi-Dow Limited: *See—*
Nakanishi, Atsuo; Izawa, Shinich; and Toyama, Kunio, 3,708,455.

Asano, Tadao; and Murakami, Noboru, to Aisin Seiki Kabushiki Kaisha. Hydraulic control system for transmission of vehicle. 3,707,891, Cl. 74-869.000.

Askren, Lee T.; and Fitzgerald, Charles S., to Eastman Kodak Company. Motion picture projector apparatus. 3,708,226, Cl. 352-109.000.

Atco Industries Ltd.: *See—*
Hampson, Jack E., 3,707,811.

Athey, Roy L., to United Aircraft Corporation. Processing for iron-base alloy. 3,708,353, Cl. 148-12.300.

Atlantic Richfield Company: *See—*
Friedman, Bernard S., 3,708,530.

Aubry, Bernard; Gillot, Jacques; Masselot, Yves; and Teboul, Albert, to Commissariat a l'Energie Atomique. Continuous sintering furnace. 3,708,157, Cl. 263-6.00r.

Augurt, Thomas Anthony: *See—*
Meyers, Marion Douglas; and Augurt, Thomas Anthony, 3,708,220.

Aull, Louis J.; and Gritt, William E., to Amsted Industries Incorporated. Measuring and sorting apparatus. 3,708,065, Cl. 209-73.000.

Aust, Ingo: *See—*
Buchfuhrer, Gerhard; Dudszus, Alfred; Milles, Wilhelm; Lerche, Franz; Feyer, Gunter; Krause, Manfred; Grunwald, Josef; Hensel, Ulrich; Aust, Ingo; Ewald, Gunter; Langer, Walter; Ludke, Gunther; Mohle, Karl-Georg; Oberlander, Joachim; Kowalski, Horst; Gatzk, Eckard; Pernaux, Gerd; Schwank, Otto; Leschnewski, Konrad; Brose, Reinhard; Hartwig, Gunter; and Ploetz, Ulrich, 3,708,100.

Automatic Sprinkler Corporation of America: *See—*
Calhoun, Fredrick L., 3,708,680.

Autonumerics Corporation: *See—*
Bucks, Robert M.; and Ayars, Frederick M., 3,708,750.

Avions Marcel Dassault: *See—*
Duthion, Louis; Cabassut, Andre Emile Roger; and Labussiere, Andre Julien, 3,708,036.

Avogadro, Alessandro; and Wurm, Joseph, to European Atomic Energy Community (Euratom). Method of processing nuclear fuels. 3,708,267, Cl. 423-5.000.

Axenova, Emilia Ivanovna: *See—*
Smirnov, Boris Andreevich; Axenova, Emilia Ivanovna; Rychkov, Vladimir Leonidovich; and Lukichev, Nikolai Dmitrievich, 3,707,970.

Ayars, Frederick M.: *See—*
Bucks, Robert M.; and Ayars, Frederick M., 3,708,750.

Azrak, Raymond George: *See—*
Barlow, Joel William; Azrak, Raymond George; and Robeson, Lloyd Mahlon, 3,708,454.

Bach, Lloyd G., to Bendix Corporation, The. Hydraulic brake booster with piston return device. 3,707,880, Cl. 91-391.000.

Back, Carl F., to Sanderson Cyclone Drill Company, The. Drilling machine. 3,708,024, Cl. 175-52.000.

Back, Frank G. Protecting structure for television cameras employing zoom lenses. 3,708,670, Cl. 250-206.000.

Badische Anilin- & Soda Fabrik Aktiengesellschaft: *See—*
Rohr, Wolfgang; Koenig, Karl-Heinz; and Fischer, Adolf, 3,708,471.

Badische Anilin- & Soda-Fabrik Aktiengesellschaft: *See—*
Andree, Franz; Burkhardt, Hans; and Riedel, Guenther, 3,708,499.
Hillenbrand, Engelbert, 3,708,536.
Kratzer, Otto; Suter, Hubert; and Wirth, Friedrich, 3,708,504.
Zeidler, Adolf; Fisher, Adolf; and Weiss, Guenther, 3,708,277.

Baermann, Max. Magnetic seal for a rotary shaft and magnet therefor. 3,708,177, Cl. 277-80.000.

Bailey, Joseph K., Jr., to TRW Inc. Mehtod of making cages. 3,707,753, Cl. 29-148.40c.

Bainbridge, Robert, to Ionarc Smelters Ltd. Chemical process in high enthalpy thermal environment and apparatus therefor. 3,708,409, Cl. 204-164.000.

Baker, Don R.: *See—*
Gutman, Arnold D.; and Baker, Don R., 3,708,590.

Baldwin, Hazel: *See—*
Baldwin, Jewell S.; and Baldwin, Hazel, 3,707,997.

Baldwin, Jewell S.; and Baldwin, Hazel. Saw carriage apparatus. 3,707,997, Cl. 83-483.000.

Bales, Joseph H.: *See—*
Tucker, James I., Jr.; Bales, Joseph H.; Bosley, Denis V.; Prodger, Brian S.; Ruppel, Kurt; and Summerfield, William F., 3,707,802.

Bally Manufacturing Corporation: *See—*
Brown, Richard L., 3,707,781.

Banic, James M., Jr.: *See—*
Stephens, Donald S.; and Banic, James M., Jr., 3,708,744.

Bantz, Clarence W., to Caterpillar Company Co. Hydraulic valve with leakage control. 3,707,984, Cl. 137-312.000.

Baraglia, Nathan A.: *See—*
Kozel, Charles A.; Baraglia, Nathan A.; and Wright, George C., 3,708,610.

Baranyi, Anthony J.: *See—*
Connell, Joseph A.; Baranyi, Anthony J.; and Laylander, Paul V., 3,707,850.

Barecki, Chester J.; and Lindberg, William S., to American Seating Company. Independent seat rise stacking and row chair. 3,708,202, Cl. 297-239.000.

Barecki, Chester J.; and Nordmark, Walter E., to American Seating Company. Vehicle attendant's chair. 3,708,203, Cl. 297-346.000.

Barhydt, Hamilton, to Hughes Aircraft Company. Multiple detector scanner with detectors spaced across scan direction. 3,708,666, Cl. 250-83.30h.

Barlow, George Edward, to Imperial Chemical Industries Limited. Production of continuous filament, non-woven webs. 3,708,365, Cl. 156-181.000.

Barlow, Joel William; Azrak, Raymond George; and Robeson, Lloyd Mahlon, to Union Carbide Corporation. Thermal stabilization of polysulfone polymers. 3,708,454, Cl. 260-37.00r.

Barltrop, Richard Kenneth, to Elliott Brothers (London) Limited. Aircraft flight control systems. 3,708,735, Cl. 318-564.000.

Barney, Trentis E.; and Clark, Alexander Jay. Golf swing practice device. 3,708,175, Cl. 273-196.000.

Barone, Bruno J.: *See—*
Croce, Louis J.; and Barone, Bruno J., 3,708,531.

Barthalon, Maurice; Moiroux, Auguste; and Watson, Patrick. Electromagnetic motion imparting means and transportor system embodying the same. 3,707,924, Cl. 104-148.01m.

Barthel, Alfred, to Union Carbide Corporation. Method of and apparatus for wrapping layered composite thermal insulation. 3,708,131, Cl. 242-3.000.

BASF Wyandotte Corporation: *See—*
Kappler, Frank R.; and Cramer, John J., 3,708,466.

Bass, Robert C., to Bimbo Inc. Fishermans lantern float. 3,707,736, Cl. 9-8.30r.

Batelle-Institute E.V.: *See—*
Binder, Horst; Kuhn, Wolfgang H.; Lindner, Werner; and Sandstede, Gerd, 3,708,342.
Bateman, Glenn; and Roberts, John A., to Tektronix Inc. Current transformer. 3,708,749, Cl. 324-127.000.
Battelle Development Corporation, The: *See—*
Javet, Alain Ferdinand, 3,708,067.
Bauer, Banjamin B.; and Gravereaux, Daniel W., to Columbia Broadcasting System, Inc. Quadraphonic reproducing system with gain control. 3,708,631, Cl. 179-100.1td.
Bausch & Lomb Incorporated: *See—*
Snow, Kenneth A.; and Vandewarker, Richard E., 3,708,758.
Terranova, Warren W., 3,708,230.
Baxter Laboratories, Inc.: *See—*
Peetoom, Frans; and Kiddy, Sandra Jean, 3,708,572.
Sipos, Tibor, 3,708,397.
Bayer Aktiengesellschaft: *See—*
Nutzel, Karl; Dinges, Karl; and Haas, Friedrich, 3,708,556.
Bayer, Horst O.; and Hurt, William S., to Rohm & Haas Company. Certain formylhydrazones used as aphicides. 3,708,591, Cl. 424-327.000.
Bean, Charles P., to General Electric Company. Measurements of particles and molecules. 3,708,402, Cl. 204-299.000.
Bearde assor. to: *See—*
Kantarian, Edward T.; Bearde, John N.; and Staub, Donald F., 3,708,160.
Bearde, John N.: *See—*
Kantarian, Edward T.; Bearde, John N.; and Staub, Donald F., 3,708,160.
Beatrice Foods Company: *See—*
Gore, William C.; and Shapiro, Eugene B., 3,707,733.
Bechara, Ibrahim S.; De La Mater, George B.; and Milligan, Barton, to Air Products and Chemicals, Inc. Method for the preparation of aminocarboxylic acid salts. 3,708,533, Cl. 260-531.00c.
Becker, Rudolf, to Linde Aktiengesellschaft Zentrale Patentabteilung. Fractionation of air by using refrigeration fro open cycle evaporation of external cryogenic liquid. 3,707,849, Cl. 62-40.000.
Beckmann, Gunter: *See—*
Dietrich, Johannes; Wolff, Oswald; Amrehn, Hermann; and Beckmann, Gunter, 3,708,465.
Bedenk, William T.; and Mitchell, John W., to Procter & Gamble Company, The. Production of puffed ready-to-eat cereal products. 3,708,308, Cl. 99-81.000.
Beedy, Robert G., to Bunn, B. H., Company. Dual tension string holder. 3,708,190, Cl. 289-13.000.
Beermann, Claus: *See—*
Rupp, Walter; and Beermann, Claus, 3,708,460.
Beers, Melvin D.: *See—*
Smith, Afred H., Jr.; and Beers, Melvin D., 3,708,467.
Belasco, Alan: *See—*
Hurst, Gerald Covington; and Belasco, Alan, 3,708,320.
Bell & Howell Company: *See—*
Haake, Robert; and Ponzi, Joseph J., 3,708,176.
Bell, Cecil R.; Swaim, Jessie E.; Gilgo, Horace Paul; Rogers, Robert C.; Sizemore, Walter Ray; and Orr, Samuel M., Jr., to Hanes Corporation. Hosiery packaging machine. 3,707,825, Cl. 53-282.000.
Bell, Edwin A., to Cities Service Oil Company. Oil skimmer. 3,708,070, Cl. 210-242.000.
Bell Telephone Laboratories, Incorporated: *See—*
Schoenberg, Leonard Norman, 3,708,329.
Beloit Corporation: *See—*
Brafford, Donald A.; and Adams, Richard J., 3,707,752.
Maitra, Kumar N., 3,708,389.
Ben-Natan, Daniel. Rigid curved sheet elements, such as screw conveyor blades, and methods of making same. 3,708,060, Cl. 72-379.000.
Bencze, William Laszlo, to Ciba-Geigy Corporation. Hypocholesterolemic phenoxy-aliphatic acid compositions. 3,708,587, Cl. 424-317.000.
Bencze, William Laszlo, to Ciba-Geigy Corporation. Hypoctoleslerolemic phenoxy-aliphatic acid compositions. 3,708,589, Cl. 424-317.000.
Bendix Corporation, The: *See—*
Bach, Lloyd G., 3,707,880.
Curran, Peter F.; Tawfik, David A.; and James, Robert L., 3,708,791.
Haase, Elmer A.; and Kirwin, James M., 3,707,985.
Krause, Walter J.; and Stout, Gilbert T., 3,708,042.
Spencer, William Meyer, 3,708,784.
Bennett Pump Incorporated: *See—*
Booth, William M.; and Westrick, Robert E., 3,708,654.
Bennett, Wilbur G.: *See—*
Schaible, Aaron M.; Braun, Bernard G.; Bennett, Wilbur G.; and Brown, Richard L., 3,707,990.
Bentsen, Louis J., to Honeywell, Inc. Diaphragm logic day signal circuit. 3,708,115, Cl. 236-47.000.
Berenson, Allen V.: *See—*
Crowley, George C.; and Berenson, Allen V., 3,708,649.
Berg, John A., to Schottel of America, Inc. Steering assembly. 3,707,939, Cl. 115-35.000.
Berg Mfg. & Sales Co.: *See—*
Cannella, Joseph L., 3,708,212.
Berg, Quentin. Apparatus for terminal manufacture. 3,707,933, Cl. 113-1.00r.
Bergamini, Giorgio, to Pignone Sud S.p.A. Dual regulator pneumatic control system having automatic alignment means for cascade and manual operation. 3,707,980, Cl. 137-84.000.
Berger, Carl, to Unican Security Systems, Ltd. Solid electrolyte films and devices containing same. 3,708,729, Cl. 317-230.000.
Berger, Julius, to Hoffmann-La Roche Inc. Antibiotic X-5108 and methods for the production thereof. 3,708,577, Cl. 424-121.000.
Berndtsson, Gunnar Ingemar: *See—*
Unger, Hans Peter Olof; Westberg, Johan Eric Hayden; Berndtsson, Gunnar Ingemar; and Schwartz, Stephan Lars, 3,708,110.
Bernstein, Jack: *See—*
Simon, Pierre; Bernstein, Jack; and Krapcho, John, 3,708,586.
Bernstein, Philip, to ESB Incorporated. Organic depolarizer. 3,708,344, Cl. 136-137.000.
Bernstein, Theodore: *See—*
Miller, Joseph G.; Stichman, John H.; and Bernstein, Theodore, 3,708,685.
Berth, Peter: *See—*
Jakobi, Gunter; and Berth, Peter, 3,708,427.
Berthoux, Jean; Schneider, Gerard; and Surville, Renaud de, to Progil. Process of manufacturing acrylic derivatives. 3,708,523, Cl. 260-486.00d.
Bertin & Cie: *See—*
Duthion, Louis; Cabassut, Andre Emile Roger; and Labussiere, Andre Julien, 3,708,036.
Berwin, Ted W., to Hughes Aircraft Company. Cathode ray beam current control system utilizing variable duty cycle and amplititude modulation. 3,708,716, Cl. 315-30.000.
Beta Corporation: *See—*
Volk, Joseph A.; and Volk, Joseph A., Jr., 3,708,677.
Beta Corporation of St. Louis: *See—*
Volk, Joseph A., 3,707,978.
Betteridge, Walter: *See—*
Burr, Derek James; and Betteridge, Walter, 3,708,282.
Bettoni, Michele. Process for producing synthetic fiber textile materials in pieces or in strips. 3,708,363, Cl. 156-148.000.
Beuther, Harold; and Swift, Harold E., to Ameripol, Inc. Dehydrogenation process. 3,708,550, Cl. 260-680.00r.
Biddick, Royce E., to Union Oil Company of California. Electrode with passageways and weir-shaped electrolyte collecting means. 3,708,341, Cl. 136-120.0fc.
Biederman, William. Optical cephalostat. 3,708,663, Cl. 250-59.000.
Bielfeldt, Heinz, to Sauer, J. P., & Sohn GmbH. Cylinder breech for small firearms. 3,707,795, Cl. 42-16.000.
Bielfeldt, Heinz, to Sauer, J. P., & Sohn GmbH. Safety apparatus for a gun triggering mechanism. 3,707,796, Cl. 42-70.00c.
Bigalke, Erhard; Pundt, Dieter H. W.; and Wolf, Jurgen, to Volkswagenwerk Aktiengesellschaft. Storage control for gasoline injection installations of combustion engines. 3,707,951, Cl. 123-32.0ea.
Biggs, Ian: *See—*
Winchcombe, John J.; Windsor, John P. G.; and Biggs, Ian, 3,708,362.
Bilhorn, John M.: *See—*
Macaulay, William R.; Bilhorn, John M.; and Anderson, Kent V., 3,708,349.
Bilicki, Stanley A.; and Blondo, Rans J. Flashing. 3,708,185, Cl. 285-42.000.
Bille, Holger Steen, to Softal Elektronik GmbH. Method of improving the surface activity of electrically conductive carrier strips. 3,708,733, Cl. 317-262.00a.
Bimbo Inc.: *See—*
Bass, Robert C., 3,707,736.
Binder, Horst; Kuhn, Wolfgang H.; Lindner, Werner; and Sandstede, Gerd, to Batelle-Institute E.V. Hydrogen electrodes for fuel cells. 3,708,342, Cl. 136-121.000.
Binkley, Norman C.; and Hammond, Joseph P., to United States of America, Atomic Energy Commission. Bonding tungsten with a fugitive alloy binder. 3,707,763, Cl. 29-498.000.
Biorex Laboratories Limited: *See—*
Gottfried, Siegfried, 3,708,575.
Birchnall, Eric James: *See—*
Sedgfield, Hugh B.; Brown, Norman Kenneth; and Birchnall, Eric James, 3,708,029.
Bird, Jack L. Power operated cigarette lighter. 3,708,180, Cl. 280-150.00r.
Birk, James R.; and Huber, Donald A., to North American Rockwell Corporation. Pyrolysis method. 3,708,270, Cl. 48-202.000.
Bixler, Kenneth D.; Chaplin, Charles J.; Reifers, Richard F.; and Peppler, William S., to Diamond International Corporation. Packing for fragile articles. 3,708,084, Cl. 217-26.500.
Blacker, Allen Palmer, Jr., to Machlett Laboratories, Incorporated, The. Image intensifier tube. 3,708,673, Cl. 250-213.0vt.
Blaich, Emil; Maier, Oskar; and Ziegler, Bodo, to Bosch, Robert, G.m.b.H. Device for replenishing the liquid in a storage battery. 3,708,347, Cl. 136-162.000.
BLH Electronics, Inc.: *See—*
Senour, Donald A., 3,708,026.
Blondo, Rans J.: *See—*
Bilicki, Stanley A.; and Blondo, Rans J., 3,708,185.
Bochinski, Julius H.; Christe, Karl O.; Gunderloy, Frank C., Jr.; Pilipovich, Donald; and Wilson, Richard D., to North American Rockwell Corporation. Methods of using fluxes in joining metal surfaces. 3,707,762, Cl. 29-494.000.

Bock, John W.; Feiertag, Orrin G.; and Sullivan, Raymond J., to General Electric Company. Diagnostic X-ray system. 3,708,664, Cl. 250-61.600.

Bodine, Albert G. Device for tunneling. 3,708,021, Cl. 173-49.000.

Boehringer Ingelheim G.m.b.H.: *See*—
Kny, Gunter; and Westphal, Otto, 3,708,558.
Kutter, Eberhard; Griss, Gerhart; Grell, Wolfgang; and Kleemann, Manfred, 3,708,486.
Stahle, Helmut; Koppe, Herbert; Kummer, Werner; and Wick, Helmut, 3,708,485.

Bolt Associates, Inc.: *See*—
Chelminski, Stephen V., 3,707,848.

Bolton, Andrew; Philpott, Peter John; and Scoats, Horace William, to Lever Brothers Company. Method of frying. 3,708,311, Cl. 99-100.00p.

Bonatti, Mario: *See*—
Angeleri, Emanuele; Bonatti, Mario; Costa, Gianmario; and Boretti, Isidoro, 3,708,625.

Bongenaar, Hendrik; and Doreleijers, Theodorus Cornelis Gerardus, to U.S. Philips Corporation. Method of providing an anti-implosion clamping band around the envelope of a picture tube. 3,708,369, Cl. 156-322.000.

Boone, Philip. Means to selectively wet web material. 3,707,945, Cl. 118-234.000.

Booth, William M.; and Westrick, Robert E., to Bennett Pump Incorporated. Reader system for conventional credit cards. 3,708,654, Cl. 235-61.11a.

Borden Chemical Company (U.K.) Limited: *See*—
Middleton, Terence H., 3,708,154.

Borden, George W.; and Trecker, David J., to Union Carbide Corporation. 1-Cycloalkenylmethyl-4,5-dihydroxy-3-hydroxymethyl-2-imidazolidinones. 3,708,495, Cl. 260-309.700.

Boretti, Isidoro: *See*—
Angeleri, Emanuele; Bonatti, Mario; Costa, Gianmario; and Boretti, Isidoro, 3,708,625.

Borg-Warner Corporation, mesne: *See*—
Ulbing, Otmar M., 3,707,955.

Bosch, Robert, G.m.b.H.: *See*—
Blaich, Emil; Maier, Oskar; and Ziegler, Bodo, 3,708,347.
Schirmer, Gunter; and Fauser, Edwin, 3,708,659.
Schlimme, Ewald, 3,707,950.

Bosley, Denis V.: *See*—
Tucker, James I., Jr.; Bales, Joseph H.; Bosley, Denis V.; Prodger, Brian S.; Ruppel, Kurt; and Summerfield, William F., 3,707,802.

Bosse, Frank: *See*—
Finke, Arno; and Bosse, Frank, 3,708,377.

Bossert, Friedrich: *See*—
Rucker, Dietrich; Bossert, Friedrich; Meyer, Horst; and Vater, Wulf, 3,708,489.

Boucher, Raymond M. G., to Wave Energy Systems, Inc. Method for continuous sterilization at low temperature. 3,708,263, Cl. 21-54.00a.

Boxall, Frank S., to Vicom Corporation. Pulse code modulation communication system. 3,708,624, Cl. 179-15.00a.

Boyd, Aland: *See*—
McCullough, Harry J.; Shahid, John M.; and Boyd, Aland, 3,708,254.

Boyertown Auto Body Works: *See*—
Hafer, Paul R., 3,708,028.

Bracey, Kenneth Edward George: *See*—
Dawson, Lindsay Grahame; Petrie, James Alexander; and Bracey, Kenneth Edward George, 3,708,244.

Brach, Paul J.; and Six, Hugh A., to Xerox Corporation. Pi-form metal phthalocyanine. 3,708,292, Cl. 96-1.500.

Brach, Paul J.; and Lardon, Marcel A., to Xerox Corporation. Pi-form metal-free phthalocyanine. 3,708,293, Cl. 96-1.500.

Brafford, Donald A.; and Adams, Richard J., to Beloit Corporation. Roll covering. 3,707,752, Cl. 29-132.000.

Brauer, Willi, to Langenstein & Schemann Aktiengesellschaft. Machines for forming a workpiece between two ram heads. 3,707,866, Cl. 72-407.000.

Braun, Bernard G.: *See*—
Schaible, Aaron M.; Braun, Bernard G.; Bennett, Wilbur G.; and Brown, Richard L., 3,707,990.

Braxton Corporation: *See*—
Horsley, Caperton B., 3,708,033.

Bredeweg, Corwin J.: *See*—
Hickner, Richard A.; and Bredeweg, Corwin J., 3,708,543.

Breeding, Terry G.: *See*—
Junker, Bernhard T.; Breeding, Terry G.; Hoyt, Michael T.; and Hedrick, Ross M., 3,708,566.

Breen, William J. One-way diaphragm seal for drains. 3,707,986, Cl. 137-525.100.

Breitmeier, Max. Method and means for continuous distribution of electrical energy. 3,708,684, Cl. 307-35.000.

Bremer, James F.: *See*—
Schaible, Aaron M.; Braun, Bernard G.; Bennett, Wilbur G.; and Brown, Richard L., 3,707,990.

Brenner, Mannie: *See*—
Leydon, Arthur J.; Brenner, Mannie; and Chase, Fred L., 3,708,331.

Brewer, John C., to Garbalizer Corporation of America. Cutter and shearing mechanism. 3,708,127, Cl. 241-32.000.

Brex Corporation: *See*—
Anderson, Earl R., 3,708,053.

Briggs, Peleg B., Jr., to Textron, Inc. Fastener driving device having improved structure for driving nails. 3,708,095, Cl. 227-126.000.

Brite Industries, Inc.: *See*—
Manzo, Joseph F.; Harris, James P.; Harris, Robert T.; and Mauch, Erwin W., 3,707,744.

British Leyland (Austin-Morris) Limited: *See*—
Middleton, Terence H., 3,708,154.

British Steel Corporation: *See*—
Jackson, Albert Edward; and Williams, Richard Fred, 3,708,322.

Brode, Eugene G.; and Kleinneiur, Jay H. Prefabricated wall system. 3,708,607, Cl. 174-48.000.

Brooks, Robert E.; and Marks, Robert T., to Ranco Incorporated. Hydraulic actuator. 3,707,844, Cl. 60-52.00b.

Brookside Corporation: *See*—
Wooden, John A., 3,708,243.

Brose, Reinhard: *See*—
Buchfuhrer, Gerhard; Dudszus, Alfred; Milles, Wilhelm; Lerche, Franz; Feyer, Gunter; Krause, Manfred; Grunwald, Josef; Hensel, Ulrich; Aust, Ingo; Ewald, Gunter; Langer, Walter; Ludke, Gunther; Mohle, Karl-Georg; Oberlander, Joachim; Kowalski, Horst; Gatzk, Eckard; Pernaux, Gerd; Schwank, Otto; Leschnewski, Konrad; Brose, Reinhard; Hartwig, Gunter; and Ploetz, Ulrich, 3,708,100.

Brower, David F., to Peltec Corporation. Apparatus for cleaning submerged surfaces. 3,707,737, Cl. 15-1.700.

Brown, Boniard I.: *See*—
Wessels, Philip S., 3,708,401.

Brown Company: *See*—
Buttery, Kenneth T., 3,708,104.

Brown, Dale G.: *See*—
Mikherjee, Barid B.; Brown, Dale G.; and Hill, Ira D., 3,708,528.

Brown, Howard W. Electrically controlled brake. 3,708,046, Cl. 192-2.000.

Brown, James L. Regulatable triggers for pneumatic devices. 3,707,994, Cl. 137-637.400.

Brown, Malcolm George, Jr.; Guille, Gilbert James, Jr.; and Long, George Ernest, III, to RCA Corporation. Cathode-ray tube with laminated safety panel and separate light-attenuating layer. 3,708,622, Cl. 178-7.820.

Brown, Melvin H.: *See*—
Brown, Robert H.; Brown, Melvin H.; and Shumaker, Murray Byron, 3,708,352.

Brown, Norman C.; and Poll, Gerald S., to Cooper, McDougall & Robertson Limited. Certain 2[1H] pyridon-4-yl phosphates and phosphorothionates. 3,708,487, Cl. 260-294.80k.

Brown, Norman Kenneth: *See*—
Sedgfield, Hugh B.; Brown, Norman Kenneth; and Birchnall, Eric James, 3,708,029.

Brown, Richard L.: *See*—
Schaible, Aaron M.; Braun, Bernard G.; Bennett, Wilbur G.; and Brown, Richard L., 3,707,990.

Brown, Richard L., to Bally Manufacturing Corporation. Apparatus for simulating roadway driving conditions. 3,707,781, Cl. 35-11.000.

Brown, Robert H.; Brown, Melvin H.; and Shumaker, Murray Byron, to Aluminum Company of America. Strain hardened aluminum-magnesium alloys. 3,708,352, Cl. 148-11.50a.

Brownlee, John H.: *See*—
Price, Warren R.; and Brownlee, John H., 3,707,748.

Bruneau, Henri; Langner, Gerhard; and Tournere, Marcel Joseph, to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation. Supporting structure for the blades of turbomachines. 3,708,242, Cl. 415-217.000.

Brunie, Jean-Claude; and Crenne, Noel, to Rhone-Poulenc S.A. Manufacture of epoxy compounds by reaction of olefins with hydroperoxides and borate esters in situ. 3,708,506, Cl. 260-348.501.

Brunnert, Otto; and Schierl, Hans, to Siemens Aktiengesellschaft. Electroacoustic transducer. 3,708,702, Cl. 310-8.200.

Bryan, Don S.: *See*—
Grotewold, Hans W.; and Bryan, Don S., 3,708,003.

Bryan, William P., Jr.: *See*—
Toews, Vern J.; and Wigle, Harold E., 3,707,806.

Bucalo, Louis, to Investors Inventures, Inc. Vas valve. 3,707,957, Cl. 128-1.00r.

Buchfuhrer, Gerhard; Dudszus, Alfred; Milles, Wilhelm; Lerche, Franz; Feyer, Gunter; Krause, Manfred; Grunwald, Josef; Hensel, Ulrich; Aust, Ingo; Ewald, Gunter; Langer, Walter; Ludke, Gunther; Mohle, Karl-Georg; Oberlander, Joachim; Kowalski, Horst; Gatzk, Eckard; Pernaux, Gerd; Schwank, Otto; Leschnewski, Konrad; Brose, Reinhard; Hartwig, Gunter; and Ploetz, Ulrich, to Veb Ingenieurburo Schiffbau. System and machinery for construction of ship sections. 3,708,100, Cl. 228-47.000.

Buck, Gordon H., to Mattel, Inc. Toy vehicle remote winding apparatus. 3,707,805, Cl. 46-202.000.

Buckley, Norman A., to McGraw-Edison Company. Garment finishing combination. 3,707,855, Cl. 68-6.000.

Buckley, William Aidan: *See*—
Collier, John Anthony; and Buckley, William Aidan, 3,708,002.

Buckman, Walter R.: *See*—
Fujimoto, Edward K.; Buckman, Walter R.; and Grezlikowsii, Edmund J., 3,708,339.

Bucks, Robert M.; and Ayars, Frederick M., to Autonumerics Corporation. Elapsed time indicator. 3,708,750, Cl. 324-178.000.

Bucyrus-Erie Company: *See*—
Bulin, Kenneth D., 3,708,152.

Budd Company, The: *See*—

Germer, John A., 3,707,920.
Germer, John A., 3,707,928.
Bueler, Richard C., to Wagner Electric Corporation. Control valve system. 3,708,211, Cl. 303-6.00c.
Bulin, Kenneth D., to Bucyrus-Erie Company. Dragline fairlead. 3,708,152, Cl. 254-190.00r.
Bumpas, Orville C. Organic garbage treatment receptacle. 3,708,085, Cl. 220-18.000.
Bunn, B. H., Company: *See—*
Beedy, Robert G., 3,708,190.
Burckhardt, Manfred H.; and Schafer, Lutz, to Daimler-Benz Aktiengesellschaft. Sealing sleeve of elastic material. 3,707,852, Cl. 64-32.00f.
Burkall, Alvin E., to Whirlpool Corporation. Belt shifter with curved fingers for multiple speed dryer. 3,707,882, Cl. 74-242.300.
Burke, George E., Jr., to Textron, Inc. Pneumatically actuated fastener driving device with improved piston return air system. 3,708,096, Cl. 227-130.000.
Burkhardt, Hans: *See—*
Andree, Franz; Burkhardt, Hans; and Riedel, Guenther, 3,708,499.
Burlington Industries, Inc.: *See—*
Tomasino, Charles; and James, Steve Clifton, 3,708,327.
Burney, Ivan T., to Westinghouse Electric Corporation. Precipitator cell. 3,707,828, Cl. 55-138.000.
Burns, Eugene A.: *See—*
Lubowitz, Hyman R.; Burns, Eugene A.; and Jones, John F., 3,708,370.
Burr, Derek James; and Betteridge, Walter, to International Nickel Company, Inc., The. Production of sintered metal products. 3,708,282, Cl. 75-200.000.
Burt, F. N., Company, Inc.: *See—*
Rosenburg, Charles W., Jr., 3,708,108.
Rosenburgh, Charles W., Jr., 3,708,109.
Burton, Lawrence A.; and Hennings, George W., to Allen-Bradley Company. Control center with shelf supported removable cabinets. 3,708,725, Cl. 317-120.000.
Bush, Eric Langley: *See—*
Sterling, Henley Frank; and Bush, Eric Langley, 3,708,728.
Butler, Luther C., Jr.; and Jamieson, Robert S., to Lorain Products Corporation. Frequency comparator. 3,708,686, Cl. 307-149.000.
Butler, Wilbur T. Liquid flow monitoring. 3,707,983, Cl. 137-173.000.
Buttery, Kenneth T., to Brown Company. Tear strip for a carton. 3,708,104, Cl. 229-51.0ts.
Bynum, Douglas, Jr.; and Gailaway, Bob M., to U.S. Rubber Reclaiming Co., Inc. Pavement and composition therefor. 3,707,901, Cl. 94-9.000.
Byrnes, Robert M. Reversible inclined conveyor for meat carrying trolleys. 3,707,925, Cl. 104-167.000.
C R Parts, Ltd.: *See—*
Ishii, Shiro, 3,708,773.
Cabassut, Andre Emile Roger: *See—*
Duthion, Louis; Cabassut, Andre Emile Roger; and Labussiere, Andre Julien, 3,708,036.
Calhoun, Fredrick L., to Automatic Sprinkler Corporation of America. Container inspection apparatus with plural detectors and rotating projection system. 3,708,680, Cl. 250-223.00b.
Calhoun, William D.; Hemsley, William T.; and Sioberg, Charles M. Decking system. 3,707,819, Cl. 52-319.000.
California Data Corporation: *See—*
Johnson, Harold, 3,708,737.
Caltabiano, Alfio, to Ghisalba S.p.A. Turin. Electromagnetic contactor. 3,708,769, Cl. 335-132.000.
Camilli, Concetto T.; and Engel, Lawrence J., to Esso Research and Engineering Company. Propellant binder and synthesis. 3,708,358, Cl. 149-7.000.
Camp, Ernest C., Jr., to Cities Service Company. Manufacture of alkali metal phosphates. 3,708,275, Cl. 71-1.000.
Campbell, David O., to United States of America, Atomic Energy Commission. Isotope enrichment process for lanthanide and actinide elements. 3,708,392, Cl. 176-16.000.
Campbell, George L., to Garland Steel Company. Conduit seal. 3,708,187, Cl. 285-373.000.
Campellone, Giuseppe: *See—*
Savarese, Giuseppe; Campellone, Giuseppe; De Luccia, Bruno; and Russo, Giovanni, 3,708,757.
Camprubi, Bartholomew; and Capron-Tee, Grahame Gerald, to Hoover Company, The. Fluidic dishwasher spray system. 3,708,120, Cl. 239-66.000.
Cannella, Joseph L., to Berg Mfg. & Sales Co. Brake application system. 3,708,212, Cl. 303-7.000.
Canon Kabushiki Kaisha: *See—*
Endo, Ichiro; and Soeda, Ken, 3,708,294.
Caporicci, Antonio G. Automatic door locking mechanism. 3,708,193, Cl. 292-280.000.
Cappon, John. Method and device for the design of two parameter distribution system. 3,708,653, Cl. 235-61.00b.
Capron-Tee, Grahame Gerald: *See—*
Camprubi, Bartholomew; and Capron-Tee, Grahame Gerald, 3,708,120.
Caraba, Jerome R.; and Schmidt, Jude P., to Motorola, Inc. Beam current control circuit for a video camera system. 3,708,617, Cl. 178-7.200.
Carborundum Company, The: *See—*
Sleggs, Alton C.; and Miller, William A., 3,708,562.
Carduck, Franz Josef: *See—*
Dorschner, Oskar; Carduck, Franz Josef; and Kuhne, Norbert, 3,707,838.
Carlo Erba S.p.A.: *See—*
Lauria, Francesco; Vecchietti, Vittorio; and Logemann, Willy, 3,708,482.
Carlson, Robert C., to Minnesota Mining and Manufacturing Company. Process for producing an impregnated waterlaid sheet and resultant product. 3,708,333, Cl. 117-140.00a.
Carmet Company: *See—*
Schnellman, Oscar; and Stier, Henry Willy, 3,707,809.
Carpenter, Charles W., to Hercules Incorporated. Pile fabric. 3,708,384, Cl. 161-65.000.
Carpenter, David W.: *See—*
Meraz, Daniel, Jr ; Simshauser, Anthony J.; Yeakey, Jack A.; and Carpenter, David W., 3,707,916.
Carr, Robert D.; Collier, Harry T.; and Jones, Clarence E., to Allied Chemical Corporation. Apparatus for treating textile material. 3,707,859, Cl. 68-202.000.
Carson Manufacturing Co.: *See—*
Carson, Robert N., Jr., 3,707,735.
Carson, Robert N., Jr., to Carson Manufacturing Co. Safety device for fluid filled mattresses. 3,707,735, Cl. 5-348.000.
Casagrande, Fulvio: *See—*
Duennenberger, Max; Schellenbaum, Max; and Casagrande, Fulvio, 3,708,527.
Case, J. I., Company: *See—*
Schaible, Aaron M.; Braun, Bernard G.; Bennett, Wilbur G.; and Brown, Richard L., 3,707,990.
Cashion, Joseph Wayne: *See—*
Zebley, Donald Dane; and Cashion, Joseph Wayne, 3,707,996.
Cassar, Luigi; Chiusoli, Gian Paolo; Foa, Marco; Losco, Giuseppe; and Fmai, Franco, to Montecatini Edison S.p.A. Process for preparing esters of the para-diphenyl acetic acid. 3,708,518, Cl. 260-469.000.
Cassar, Luigi; Foa, Marco; and Chiusoli, Gian Paolo, to Montecatini Edison S.p.A. Process for preparing phenylacetic acid. 3,708,529, Cl. 260-515.00r.
Caterpillar Company Co.: *See—*
Bantz, Clarence W., 3,707,984.
Caterpillar Tractor Company: *See—*
Day, Ralph R., 3,707,887.
Celanese Corporation: *See—*
Chenevey, Edward Clarence; and Kimmel, Robert Michael, 3,708,326.
Centre de Recherches de Pont-a-Mousson: *See—*
Lang, Georges F., 3,708,132.
Centre de Recherches de Pont-a-Mousson Maidieres: *See—*
Leblond, Christian Georges; and Oger, Jacques Francois Marie, 3,707,846.
Chao, Hung-Chi, to United States Steel Corporation. Method of converting metal powder into bar stock. 3,708,284, Cl. 75-208.0cs.
Chaplin, Charles J.: *See—*
Bixler, Kenneth D.; Chaplin, Charles J.; Reifers, Richard F.; and Peppler, William S., 3,708,084.
Chapman, John H.; and Staniforth, Susan E., to Glaxo Laboratories Limited. Crystalline complex of cephaloridine with an alkane diol. 3,708,478, Cl. 122/080/3/9/.
Chase, Fred L.: *See—*
Leydon, Arthur J.; Brenner, Mannie; and Chase, Fred L., 3,708,331.
Chase, W. R., & Co.: *See—*
Leydon, Arthur J.; Brenner, Mannie; and Chase, Fred L., 3,708,331.
Chelminski, Stephen V., to Bolt Associates, Inc. Process and system for increasing load-bearing capacity of soil. 3,707,848, Cl. 61-11.000.
Chemische Werke Huls Aktiengesellschaft: *See—*
Dietrich, Johannes; Wolff, Oswald; Amrehn, Hermann; and Beckmann, Gunter, 3,708,465.
Rombusch, Konrad; and Magosch, Karl-Heinz, 3,708,464.
Chenevey, Edward Clarence; and Kimmel, Robert Michael, to Celanese Corporation. Stabilization of acrylic fibers and films. 3,708,326, Cl. 117-62.000.
Chernyakov, Semen Semenovich: *See—*
Stepanov, Gleb Alexandrovich; Chernyakov, Semen Semenovich; and Karchmar, Tsetsiliya Aronovna, 3,708,316.
Chevron Research Company: *See—*
Graves, Thomas M., 3,707,807.
Sweeney, William A., 3,708,437.
Chihoski, Russell A.: *See—*
Croucher, William C.; and Chihoski, Russell A., 3,708,648.
Chinakal, Nikolai Andreevich: *See—*
Nazarov, Nikolai Grigorievich; Chinakal, Nikolai Andreevich; Sudnishnikov, Boris Vasilievich; Kostylev, Alexandr Dmitrievich; Gurkov, Konstantin Stepanovich; and Tupitsyn, Konstantin Konstantinovich, 3,708,023.
Chiusoli, Gian Paolo: *See—*
Cassar, Luigi; Chiusoli, Gian Paolo; Foa, Marco; Losco, Giuseppe; and Fmai, Franco, 3,708,518.
Cassar, Luigi; Foa, Marco; and Chiusoli, Gian Paolo, 3,708,529.
Christe, Karl O.: *See—*
Bochinski, Julius H.; Christe, Karl O.; Gunderloy, Frank C., Jr.; Pilipovich, Donald; and Wilson, Richard D., 3,707,762.
Christiano, Victor: *See—*
Van Raalte, John A.; and Christiano, Victor, 3,708,712.

Christofilos, Nicholas C., to United States of America, Atomic Energy Commission. High power density controlled fusion reactor. 3,708,391, Cl. 176-4.000.
Christy, Marcia E., to Merck & Co., Inc. Chemical compounds and processes for preparing same. 3,708,525, Cl. 260-488.0cd.
Ciba-Geigy AG: *See—*
Duennenberger, Max; Schellenbaum, Max; and Casagrande, Fulvio, 3,708,527.
Schumacher, Ernst, 3,708,295.
Ciba-Geigy Corporation: *See—*
Anner, Georg; and Wieland, Peter, 3,708,503.
Bencze, William Laszlo, 3,708,587.
Bencze, William Laszlo, 3,708,589.
Dexter, Martin; Spivack, John D.; and Steinberg, David H., 3,708,520.
Dietrich, Henri; and Lehmann, Claude, 3,708,493.
Dietrich, Henri; and Lehmann, Calude, 3,708,494.
Kirchmayr, Rudolf, 3,708,475.
Cities Service Company: *See—*
Camp, Ernest C., Jr., 3,708,275.
Cities Service Oil Company: *See—*
Bell, Edwin A., 3,708,070.
Land, Karl M., 3,707,914.
Swanson, John W., 3,708,422.
Cities Service Research & Development Company: *See—*
Mounce, William R., 3,708,569.
Citrin, Paul Stuart, to Sieburg Industries Incorporated. Method and device for article working such as fracturing of semiconductor slices and separating semiconductor chips. 3,707,760, Cl. 29-413.000.
Clark, Alexander Jay: *See—*
Barney, Trentis E.; and Clark, Alexander Jay, 3,708,175.
Clark, George B., to Aqua-Chem, Inc. Reverse osmosis membrane module and apparatus using the same. 3,708,069, Cl. 210-181.000.
Clark, William T. Method and means of presenting a planetarium display. 3,707,786, Cl. 35-42.500.
Clements, Richard F., to Environmental Control Products, Inc. Batch ram feeding apparatus. 3,708,078, Cl. 214-23.000.
Clipp, Louis L.: *See—*
Hall, James M.; and Clipp, Louis L., 3,708,121.
Closson, Addison W. Jr. Shoe stiffener. 3,708,332, Cl. 117-122.00h.
Coale, Sidney C. Vehicle traction track. 3,708,117, Cl. 238-14.000.
Coats, Jesse C. Moving shadow light indexing means. 3,707,999, Cl. 83-438.000.
Colato, Albert E., to Plastics, Inc. Divided plate cover and plate. 3,708,086, Cl. 220-20.000.
Cole, Edmund A., 1/2 to Peters, Ernest C. Check-out counter. 3,707,826, Cl. 53-384.000.
Coleman, Michael G., to Motorola, Inc. Method of making isolated semiconductor devices. 3,707,765, Cl. 29-578.00.
Colgate-Palmolive Company: *See—*
Compa, Russell Edward; Fischer, Charles Frederick; Hunter, Robert Tweedy, Jr.; and Odioso, Raymond Camillus, 3,708,425.
Collier, Franck; Dauchy, Jean-Daniel; Sargent, Christian; and Michon, Maurice, to Compagnie Generale d'Electricite. Liquid laser. 3,708,759, Cl. 331-945.000.
Collier, Harry T.: *See—*
Carr, Robert D.; Collier, Harry T.; and Jones, Clarence E., 3,707,859.
Collier, John Anthony; and Buckley, William Aidan, to Pauls & Sandars, Limited. Malting of dehusked grain. 3,708,002, Cl. 99-50.000.
Collins, Joseph C., to Sterling Drug, Inc. 3,3-Dichloro-2-oxopolymethylenimines. 3,708,473, Cl. 260-239.30r.
Collins, Robert F.: *See—*
Patience, Donald; and Collins, Robert F., 3,707,964.
Colonial Sugar Refining Company Limited, The: *See—*
Smith, Peter; and Suzor, Herve, 3,708,337.
Columbia Broadcasting System, Inc.: *See—*
Bauer, Banjamin B.; and Gravereaux, Daniel W., 3,708,631.
Solomon, Kenneth R.; Mletzko, Alfred E.; and Walker, Donald J., 3,708,797.
Combined Optical Industries, Limited: *See—*
Stern, David, 3,708,222.
Combs, Ollah, to National Cash Register Company, The. Optical bar code serial printer. 3,707,910, Cl. 101-93.00c.
Commercial Shearing & Stamping Company: *See—*
Hodgson, Robert F., 3,707,988.
Commercial Solvents Corporation: *See—*
Firth, Jay A.; and Frump, John A., 3,708,334.
Commissariat a l'Energie Atomique: *See—*
Aubry, Bernard; Gillot, Jacques; Masselot, Yves; and Teboul, Albert, 3,708,157.
Denis, Pierre M.; and Guicherd, Roger, 3,708,667.
Herve, Michel; and Rasneur, Bernard, 3,707,870.
Jottier, Christian Francis, 3,708,264.
Pierson, Alexandre, 3,708,740.
Townsend, Eric J., 3,707,758.
Compa, Russell Edward; Fischer, Charles Frederick; Hunter, Robert Tweedy, Jr.; and Odioso, Raymond Camillus, to Colgate-Palmolive Company. Detergent bars. 3,708,425, Cl. 252-89.000.
Compagnie Generale d'Automatisne: *See—*
Nourigat, Gerard, 3,708,790.
Compagnie Generale d'Electricite: *See—*
Collier, Franck; Dauchy, Jean-Daniel; Sargent, Christian; and Michon, Maurice, 3,708,759.
Quevrin, Janic, 3,707,767.
Compagnie Internationale Pour l'Informatique: *See—*
Spain, Robert J., 3,708,789.
Conchemco, Incorporated, mesne: *See—*
Reinhart, Donald R.; and Fritts, Russell A., 3,708,318.
Condecor, Inc.: *See—*
Levy, Leon M., 3,707,791.
Connell, Joseph A.; Baranyi, Anthony J.; and Laylander, Paul V., to Systems Capital Corporation. Cryogenic storage tank improvements. 3,707,850, Cl. 62-45.000.
Conner, Rex C.; and Ferstandig, Louis L., to Halocarbon Products Corporation. Prime mover system utilizing bis (trifluoromethyl) benzene as working fluid. 3,707,843, Cl. 60-36.000.
Considine, William J.: *See—*
Reifenberg, Gerald H.; and Considine, William J., 3,708,549.
Continental Can Company, Inc.: *See—*
Stock, Michael J.; and Kotal, John R., 3,708,679.
Tatham, James P., 3,708,687.
Contreras, Manuel H.; and Land Bros. Inc. Apparatus for performing intermittent operations on a web. 3,708,372, Cl. 156-351.000.
Cook, John S., to Mattel, Inc. Grooved track for toy vehicles. 3,707,804, Cl. 46-202.000.
Coon, Clifford L.; McDonald, Gerald J.; and Hill, Marion E., to Stanford Research Institute. Preparation of dinitrotoluene. 3,708,546, Cl. 260-645.000.
Coons, Glen T. Convertible trailer, porch and camper. 3,708,198, Cl. 296-23.00r.
Cooper, McDougall & Robertson Limited: *See—*
Brown, Norman C.; and Poll, Gerald S., 3,708,487.
Cope, James R.; and Smith, Paul F., to International Business Machines Corporation. Magnetic tape unit having a pneumatic reel hub. 3,708,136, Cl. 242-68.300.
Corker, Alfred Eric, to Cox, Arthur H., & Co., Limited. Pharmaceutical compositions providing potassium chloride in aqueous solution. 3,708,574, Cl. 424-44.000.
Corning Glass Works: *See—*
Mitchell, Angelo Michael, 3,708,273.
Cosley, Colman; and Streuer, Wilhelm A., to Oak Electro/Netics Corporation. Multiple switch assembly with improved reciprocating leaf spring contact cam actuator. 3,708,635, Cl. 200-5.00r.
Cosper, Dale L. Steam bath cabinet. 3,707,732, Cl. 4-164.000.
Cosper, Dale L., to Research Corporation. Belt massage machine. 3,707,962, Cl. 128-63.000.
Costa, Gianmario: *See—*
Angeleri, Emanuele; Bonatti, Mario; Costa, Gianmario; and Boretti, Isidoro, 3,708,625.
Cotter, Ashby M., 50% to Harper, Roy. Inclination indicator. 3,707,772, Cl. 33-373.000.
Cox, Arthur H., & Co., Limited: *See—*
Corker, Alfred Eric, 3,708,574.
Crain, Rita M. Garmet bag. 3,708,005, Cl. 150-30.000.
Craine, Joseph B.: *See—*
Malinow, Sidney; and Craine, Joseph B., 3,708,312.
Cramer, John J.: *See—*
Kappler, Frank R.; and Cramer, John J., 3,708,466.
Crawford, James J.; and Frezzoiini, James, to Frezzolini Electronics, Inc. Battery charging and discharging. 3,708,738, Cl. 320-9.000.
Crenne, Noel: *See—*
Brunie, Jean-Claude; and Crenne, Noel, 3,708,506.
Croce, Louis J.; and Barone, Bruno J., to Petro-Tex Chemical Corporation. Promotion of the oxidation of mononuclear aromatic compounds. 3,708,531, Cl. 260-523.00a.
Croucher, William C.; and Chihoski, Russell A., to Martin-Marietta Corporation. Multi-mode structural spotweld monitor. 3,708,648, Cl. 219-109.000.
Crouzet: *See—*
Jullien-Davin, Jean, 3,707,989.
Crowley, George C.; and Berenson, Allen V., to Northern Electric Company. Automatic blanket integral control. 3,708,649, Cl. 219-212.000.
Crowley, Richard P., to Abcor, Inc. Hollow fiber membrane device and method of fabricating same. 3,708,071, Cl. 210-321.000.
Crown City Plating Co.: *See—*
Kadison, Leon A.; and Maguire, Eileen, 3,708,430.
C.S.S. Machine & Tool Company, Inc.: *See—*
Faure, Alphonse W., 3,708,052.
Cunningham, James Alan: *See—*
Wakefield, Robert Henry, Jr.; Cunningham, James Alan; and Hswe, Myint, 3,708,360.
Cupic Foundations, Inc.: *See—*
Welsch, David Peter; and Yannes, Harry, 3,707,973.
Curran, Peter F.; Tawfik, David A.; and James, Robert L., to Bendix Corporation, The. Sequential monitor. 3,708,791, Cl. 340-248.00a.
Custom Machine, Inc.: *See—*
Wloszek, Joseph T., 3,708,079.
Cymbrowitz, Morris M.; and Mudgett, John C. Modular structure. 3,707,813, Cl. 52-79.000.
Dailey, Jack R.; and Surgent, John G., to International Business Machines Corporation. Associative memory cell driver and sense amplifier circuit. 3,708,788, Cl. 340-173.00r.
Daimler-Benz Aktiengesellschaft: *See—*
Burckhardt, Manfred H.; and Schafer, Lutz, 3,707,852.
Dallas, Nick S.; and Uzumecki, Richard W., to Tubal Industries, Inc., mesne. Blackening process. 3,708,351, Cl. 148-6.350.
Dalrymple, Jerry C. Dust collector shroud. 3,707,998, Cl. 141-93.000.

Danko, Raymond A., and Minge, Donald L., to Mannix Construction Inc. Rail grinder. 3,707,808, Cl. 51-178.000.
Das, Naba K., to Grace, W. R., & Co. Composition and method for inhibiting the growth of animal pathogens. 3,708,578, Cl. 424-141.000.
Dato, Anthony L.; and Zilahy, Zoltan E., to Standard Tool & Manufacturing Co. Control mechanism for advancing and locating pallets. 3,708,051, Cl. 198-19.000.
Datron Systems, Inc.: *See—*
Pratt, George B., 3,708,768.
Dauchy, Jean-Daniel: *See—*
Collier, Franck; Dauchy, Jean-Daniel; Sargent, Christian; and Michon, Maurice, 3,708,759.
Daus, Donald A.: *See—*
Misch, Robert D.; and Daus, Donald A., 3,707,751.
Misch, Robert D.; and Daus, Donald A., 3,708,225.
Dautzenberg, Frits M.; Naber, Jaap E.; and Verwey, Cornelis W. J., to Shell Oil Company. Corrugated gauze reactor. 3,707,831, Cl. 55-483.000.
Davies, Terence J., to Xerox Corporation. Photoelectrophoretic imaging with ultrasonic vibration during imaging. 3,708,286, Cl. 96-1.000.
Davis, Alfred Charles, to Imperial Tobacco Group Limited. Filter cigarette having apertured band. 3,707,975, Cl. 131-9.000.
Davis, Charles H., to Anaconda Wire and Cable Company. Counting reset apparatus for use in measuring method. 3,708,112, Cl. 235-58.00p.
Davis, Edward L. Rotary display stand. 3,708,073, Cl. 211-47.000.
Davis, Lynn M.: *See—*
Theis, James V., Jr.; and Davis, Lynn M., 3,708,240.
Davis, William M., Jr.; and Windya, Richard A., to Singer Company, The. High speed switch with complementary outputs. 3,708,695, Cl. 307-237.000.
Davy and United Engineering Company, Limited: *See—*
Ross, Keith, 3,708,147.
Dawson, Lindsay Grahame; Petrie, James Alexander; and Bracey, Kenneth Edward George, to Rolls-Royce Limited. Bladed rotor for a gas turbine engine. 3,708,244, Cl. 416-196.000.
Day, Ralph R., to Caterpillar Tractor Company. Steering control means and grab bar combination. 3,707,887, Cl. 74-552.000.
De Corso, Serafino M., to Westinghouse Electric Corporation. Process of refining metal in a vacuum with coaxially mounted non-consumable electrodes. 3,708,279, Cl. 75-10.00v.
De Kinkelder, Petrus Johannes Alloysius. Flaring spray nozzle. 3,708,126, Cl. 239-590.500.
De La Mater, George B.: *See—*
Bechara, Ibrahim S.; De La Mater, George B.; and Milligan, Barton, 3,708,533.
De Laet, Jules Maria: *See—*
Vanreusel, Gerard Laurens; Van Pee, Paul Desire; and De Laet, Jules Maria, 3,708,298.
De Laval Turbine California, Inc.: *See—*
Rhoades, Warren A., Jr.; and Fleischer, Danville Alfred R., 3,707,953.
De Luccia, Bruno: *See—*
Savarese, Giuseppe; Campellone, Giuseppe; De Luccia, Bruno; and Russo, Giovanni, 3,708,757.
De Staat der Nederlanden, ten Deze Vertegenwoordig Door de Directeur-Generaal der Posterijen, Telegrafie en Telefonie: *See—*
Hendriks, Hendrik Adrianus, 3,708,628.
DeBray, Harold W., to United States Steel Corporation. Method and apparatus for locating the surface of a liquid metal bath. 3,708,159, Cl. 266-34.01m.
Deere & Company: *See—*
Ryan, Edward Clyde, 3,708,019.
Deguchi, Takashi: *See—*
Yamahara, Takeshi; Kishimoto, Hiroshi; Nakamura, Shinji; Deguchi, Takashi; and Takamatsu, Shichiro, 3,708,548.
Delle-Alsthom: *See—*
Deville, Robert, 3,708,711.
Vigreux, Jacques; and Trolliet, Bernard, 3,708,639.
Delta, Vladimir Hach; and Higson, Harold G., to MacMillan Bloedel Limited. Cinnamate esters of thujols. 3,708,521, Cl. 260-476.00c.
Delves, H. Trevor, to Perkin-Elmer Corporation, The. Sampling technique for atomic absorption spectroscopy. 3,708,228, Cl. 356-87.000.
Demers, Romeo J. N. Cleaner for paint rollers. 3,707,740, Cl. 15-236.000.
Denis, Pierre M.; and Guicherd, Roger, to Commissariat a l'Energie Atomique. Instrument for measuring the solar energy absorbed by the earth and the plants. 3,708,667, Cl. 250-83.30h.
Denki Onkyo Company, Ltd.: *See—*
Kawada, Takehiko, 3,708,701.
Deutsche Edelstahlwerke Aktiengesellschaft: *See—*
Nickel, Ernst Gunter; Severin, Hans Peter; and Frye, Helmut, 3,708,600.
Deutsche Gold- und Silber-Scheideanstalt vormals Roessler: *See—*
Kleemann, Axel; Kruger, Manfred; Schreyer, Gerd; Weiberg, Otto; and Weigert, Wolfgang, 3,708,507.
Deutschne Edelstahlwerke A.G.: *See—*
Falk, Willi, 3,707,747.
Deville, Robert, to Delle-Alsthom. Explosion proof high voltage resistance arrester. 3,708,711, Cl. 313-325.000.
Dexter, Martin; Spivack, John D.; and Steinberg, David H., to Ciba-Geigy Corporation. Vinyl esters of dialkylhydroxyphenyl alkanoates. 3,708,520, Cl. 260-473.00s.
Diamond International Corporation: *See—*
Bixler, Kenneth D.; Chaplin, Charles J.; Reifers, Richard F.; and Peppler, William S., 3,708,084.
Diamond National Corporation: *See—*
Fielder, James C., 3,708,656.
Diamond Shamrock Corporation: *See—*
Greenbaum, Sheldon B.; Hacke, Walter; and Horn, Herman, 3,708,505.
Kennedy, Alexander W.; and Malkin, Irving, 3,708,350.
Stallings, John P., 3,708,463.
Toggweiler, Ulrich; and Roselli, Frank F., 3,708,443.
Diassi, Patrick A., to Squibb, E. R., & Sons, Inc. 2,11,12,20-tetrola-a-norpregnanes and derivatives thereof. 3,708,501, Cl. 260-340.500.
Dick, A. B., Company: *See—*
Keur, Robert I., 3,708,118.
Diehl, Elmer Paul, to General Electric Company. Process controller with gain-changing circuitry. 3,708,754, Cl. 330-1.00a.
Dietrich, Henri; and Lehmann, Claude, to Ciba-Geigy Corporation. p-(Acetoacetamidoalkyl)benzenesulfonamide derivatives. 3,708,493, Cl. 260-309.700.
Dietrich, Henri; and Lehmann, Calude, to Ciba-Geigy Corporation. Derivatives of p-aminoalkylphenylsulfonyl-2-imino-imidazolidines. 3,708,494, Cl. 260-309.700.
Dietrich, Johannes; Wolff, Oswald; Amrehn, Hermann; and Beckmann, Gunter, to Chemische Werke Huls Aktiengesellschaft. Method and apparatus for interrupting the polymerization of olefins. 3,708,465, Cl. 260-93.700.
Dillin, Arthur J.: *See—*
Koether, Karl H.; and Dillin, Arthur J., 3,708,094.
Dillon, Richard H. F. Self-propelled vehicle system for use in transfer of materials. 3,707,922, Cl. 104-114.000.
Dinaco, Inc.: *See—*
Hart, William S., 3,707,789.
Dinger, Leon Joe, to AMP Incorporated. Heat shrinkable preinsulated electrical connector and method of fabrication thereof. 3,708,611, Cl. 174-84.00c.
Dinger, Leon Joel, to AMP Domestic, Inc. Closure device for closing flexible tubes. 3,708,149, Cl. 251-9.000.
Dinges, Karl: *See—*
Nutzel, Karl; Dinges, Karl; and Haas, Friedrich, 3,708,556.
Dismukes, Newton B., to Mobil Oil Corporation. Method and apparatus for obtaining an improved gravel pack. 3,708,013, Cl. 166-276.000.
Dittmar and Penn Corporation: *See—*
Ziegler, Carrell G.; and Hoffman, Albert H., 3,708,034.
Dole, James, Corporation: *See—*
Guckel, Gerhart A., 3,707,823.
Dolfini, Joseph Edward: *See—*
Welch, Arnold D.; Dolfini, Joseph Edward; and Giarrusso, Frederick F., 3,708,479.
Dolin, Stanley A.: *See—*
Krakow, Burton; Dolin, Stanley A.; and Kruegle, Herman A., 3,708,227.
Domkraft AB Nike: *See—*
Flodin, Karl Borje Yngve, 3,707,886.
Donnelly, Harold F., to Kimberly-Clark Corporation. Method of producing absorbent paper toweling material. 3,708,366, Cl. 156-209.000.
Doreleijers, Theodorus Cornelis Gerardus: *See—*
Bongenaar, Hendrik; and Doreleijers, Theodorus Cornelis Gerardus, 3,708,369.
Dorren, Louis, to Quadracast Systems, Inc. Compatible four channel FM system. 3,708,623, Cl. 179-15.0bt.
Dorschner, Oskar; Carduck, Franz Josef; and Kuhne, Norbert, to Metallgesellschaft Aktiengesellschaft. Process for the production of staple fibers. 3,707,838, Cl. 57-157.00r.
Doss, Nagib A., to GAF Corporation. Method for dyeing polyamide fibers with halotriazinylmonoazo dyestuffs. 3,708,259, Cl. 8-41.00r.
Douchet, Charles; Grancher, Pierre; and Vecchiutti, Robert. Manufacture of dialkyl sulphoxides. 3,708,542, Cl. 260-607.00a.
Douty, Donald L., to United States Steel Corporation. Can end with bonded seal slide. 3,708,091, Cl. 222-541.000.
Dove, Jack E. Electrostatic principle rotating atomic motor. 3,708,703, Cl. 310-10.000.
Dow Chemical Company, The: *See—*
Anderson, Richard W.; and Frick, Hughie R., 3,708,483.
Frevel, Ludo K.; and Kressley, Leonard J., 3,708,526.
Hickner, Richard A.; and Bredeweg, Corwin J., 3,708,543.
Kurtz, Robert G.; and Van Vorous, Theodore, 3,708,325.
McKinley, Suzanne V.; and Rakshys, Joseph W., Jr., 3,708,462.
Nimerick, Kenneth Hugh; and Eilers, Louis Hugh, 3,708,319.
Dow Corning Corporation: *See—*
Joslyn, Wallace G.; and Keil, Joseph W., 3,708,441.
Stebleton, Leo F., 3,708,324.
Dragoco Spezialfabrik Konz. Riech- und Aroma-stoffe Gerberding & Co., G.m.b.H.: *See—*
Schrader, Karlheinz, 3,708,426.
Drexel University: *See—*
Turner, Derek T.; and Scheer, John E., 3,708,387.
Du Pont de Nemours, E. I., and Company: *See—*
McErlane, James Edward; and Palmer, Russell Neal, 3,708,133.

Rowe, Jean Max, 3,708,734.
Short, Oliver A., 3,708,313.
Squire, Edward Noonan, 3,708,545.
Summers, Ronald J., 3,707,746.
Van Dyk, John W.; Vining, Roy H.; and Wittman, David, 3,708,233.

Dudszus, Alfred: *See—*
Buchfuhrer, Gerhard; Dudszus, Alfred; Milles, Wilhelm; Lerche, Franz; Feyer, Gunter; Krause, Manfred; Grunwald, Josef; Hensel, Ulrich; Aust, Ingo; Ewald, Gunter; Langer, Walter; Ludke, Gunther; Mohle, Karl-Georg; Oberlander, Joachim; Kowalski, Horst; Gatzk, Eckard; Pernaux, Gerd; Schwank, Otto; Leschnewski, Konrad; Brose, Reinhard; Hartwig, Gunter; and Ploetz, Ulrich, 3,708,100.

Duennenberger, Max; Schellenbaum, Max; and Casagrande, Fulvio, to Ciba-Geigy AG. Quaternary ammonium aryl carboxylic acid salts. 3,708,527, Cl. 260-501.159.

Duff-Morton Company, Inc.: *See—*
Profet, Anthony G., 3,707,885.

Duffty, Bryan; Golob, Theodore B.; Jasinski, Stanley C.; and Zwart, Jack, to Eaton Yale & Towne Canada Limited. Method and apparatus for harvesting trees. 3,708,000, Cl. 144-3.00d.

Dugge, Richard H., to ACF Industries, Incorporated. Pneumatic hopper outlet for railway cars. 3,708,209, Cl. 302-52.000.

Dunathan, Jay P., to Oceanography Mariculture Industries, Inc. Oyster spawning facilaity. 3,707,948, Cl. 119-4.000.

Duncan, Cecil L.; McNelia, John F.; and Pickler, William C., to United States of America, Navy. Mechanical fuze with self-destruct mechanism. 3,707,912, Cl. 102-7.400.

Dunfee, Danny D.; Evans, Robert W.; and Grimm, Richard C., to Susquehanna Corporation, The. Aerosol disseminator. 3,707,918, Cl. 102-90.000.

Dunkin' Donuts Incorporated: *See—*
Schertz, Eugene P.; and Troisi, George A., 3,708,255.

Dunlop, Andrew P.; and Wuskell, Joseph P., to Quaker Oats Company, The. Terephthaldehyde acetals. 3,708,502, Cl. 260-340.700.

Dunlop Holdings Limited: *See—*
Winchcombe, John J.; Windsor, John P. G.; and Biggs, Ian, 3,708,362.

Dunn, Charlton, III: *See—*
Sorensen, Ronald L.; and Dunn, Charlton, III, 3,708,223.

Dunn, Jackei J., Sr.: *See—*
Saxon, James B.; and Dunn, Jackei J., Sr., 3,708,612.

Duplessis, Gerard. Foot massaging apparatus. 3,707,961, Cl. 128-33.000.

Durkin, John T.: *See—*
Krueger, Harvey R.; and Reynolds, Donald S., 3,708,637.

Duthion, Louis; Cabassut, Andre Emile Roger; and Labussiere, Andre Julien, to Bertin & Cie and Avions Marcel Dassault. Apparatus for attenuating the noise made by fluid jets ejected from a conduit. 3,708,036, Cl. 181-33.00h.

Dykes, Norman: *See—*
McWhorter, William C.; and Dykes, Norman, 3,708,451.

Dynamic Air Inc.: *See—*
Steele, James R., 3,708,207.

Dynamics Research Corporation: *See—*
Ivers, Richard J., 3,708,681.

Eastern Company, The: *See—*
Pastva, John V., Jr., 3,707,862.

Eastman Kodak Company: *See—*
Askren, Lee T.; and Fitzgerald, Charles S., 3,708,226.
Hiller, Gary Lynn, 3,708,304.
Huboi, Robert W.; Palmer, Osmond F.; and Rising, Bradley D., 3,708,676.
Luckey, George W., 3,708,300.
Plakunov, James; and Koller, James Edward, 3,708,302.
Salesin, Eugene D., 3,708,303.
Siegel, Harris T., 3,707,829.

Eaton Yale & Towne Canada Limited: *See—*
Duffty, Bryan; Golob, Theodore B.; Jasinski, Stanley C.; and Zwart, Jack, 3,708,000.

Eaton Yale & Towne, Inc.: *See—*
Richens, Kenneth A.; Grover, Scott C.; Allred, James K.; and Shook, James H., 3,708,077.

Ebert, Michael: *See—*
Kasakoff, Sam, 3,708,310.

Ecodyne Corporation: *See—*
Tischler, Edward J., 3,708,068.

Econa (G.&B.) Plastics Limited: *See—*
Molyneux, George, 3,707,815.

Eden, Jamal S., to Goodrich, B. F., Company, The. Chromium molybdate, tellurium oxide, phosphorus oxide catalyst. 3,708,434, Cl. 252-435.000.

EDP Limited, mesne: *See—*
McGourty, Thomas K., 3,707,778.

Eilers, Louis Hugh: *See—*
Nimerick, Kenneth Hugh; and Eilers, Louis Hugh, 3,708,319.

Eisenberg, Earnold J.: *See—*
Loewenstein, Klaus L.; Eisenberg, Earnold J.; and Warshaw, Saul, 3,708,271.

Eisenegger, Edwin E.; and Hefermehl, Hans-Peter, to Gebrueder Buhler AG and Hefermehl, H. P., S.A. Method for the drying of high-moisture waste products of living organismus. 3,707,774, Cl. 34-14.000.

Electric Power Storage Limited: *See—*
Painter, Roy; and Vaughan, Graham John, 3,708,348.

Ellenberger, Jakob. Push-button actuated excess current switch. 3,708,776, Cl. 337-66.000.

Elliott Brothers (London) Limited: *See—*
Barltrop, Richard Kenneth, 3,708,735.

Elliott, Roy Lee. Index card means. 3,708,066, Cl. 209-80.500.

Ellis, James B.: *See—*
Lux, George K.; Ellis, James B.; and Schulze, John J., 3,708,161.

Ellison, John E.; and Flink, Herbert M., to Skinner Precision Industries, Inc. Electromagnetic valve assembly. 3,707,992, Cl. 137-625.650.

Ellzey, Floyd P. Railway vehicle height controlling system. 3,707,926, Cl. 104-1.00r.

Emmet, Robert T., to United States of America, Navy. Sensor for a variable-pressure rolling ball viscometer. 3,707,871, Cl. 73-57.000.

Endo, Ichiro; and Soeda, Ken, to Canon Kabushiki Kaisha. Process for preparing a photoconductive fiber sheet. 3,708,294, Cl. 96-1.600.

Energy Conversion Devices, Inc.: *See—*
Fleming, Gordon R., 3,708,717.

Engel, John T.: *See—*
Winstrom, Willis L.; Engel, John T.; Sigler, Alan D.; and Thomas, George David, 3,708,583.

Engel, Karl, to Telesco Brophey Limited. One-piece carton and blank. 3,708,102, Cl. 229-31.0fs.

Engel, Lawrence J.: *See—*
Camilli, Concetto T.; and Engel, Lawrence J., 3,708,358.

Engelsmann, Dieter; Kessler, Fritz; Mass, Dieter; and Zattler, Kurt, to Agfa-Gevaert Aktiengesellschaft. Photographic apparatus with braking means for roll film. 3,707,904, Cl. 95-31.00r.

English, Jackson Pollard: *See—*
Miller, Bernard; and English, Jackson Pollard, 3,708,580.

Enright, Dennis J.; Kahabka, Richard D.; and Miller, Donald F., to Minnesota Mining and Manufacturing Company. Wire-splicing apparatus and method. 3,708,779, Cl. 339-99.00r.

Environmental Control Products, Inc.: *See—*
Clements, Richard F., 3,708,078.

Epsztein, Bernard: *See—*
Guenard, Pierre; and Epsztein, Bernard, 3,708,764.

Erb, George H., to American Velcro, Inc. Hooked surface of a hook and loop type fastener. 3,708,382, Cl. 161-48.000.

Erickson Electrical Equipment Co.: *See—*
Erickson, John W., 3,708,643.

Erickson, John W., to Erickson Electrical Equipment Co. High-current switch with contact pressure booster. 3,708,643, Cl. 200-170.00a.

Erie, Technological Products, Inc.: *See—*
Wiles, Philip, 3,708,722.

Erwin, Henry P., Jr., to Precision Field Coil Company. Dual purpose coil for automobile starter motors. 3,708,682, Cl. 290-37.000.

ESB Incorporated: *See—*
Bernstein, Philip, 3,708,344.
Macaulay, William R.; Bilhorn, John M.; and Anderson, Kent V., 3,708,349.
Raddi, William J., 3,707,974.

Esso Research and Engineering Company: *See—*
Camilli, Concetto T.; and Engel, Lawrence J., 3,708,358.
Olah, George A., 3,708,553.

Esveldt, Cornelis Jacobus; and Slijkerman, Petrus Nicolaas, to U.S. Philips Corporation. Annular core consisting of a ferromagnetic ferrite and to be used as a magnetic memory element and of manufacturing such a magnetic core. 3,708,423, Cl. 252-62.610.

Ethyl Corporation: *See—*
Immethun, Feter A., 3,708,385.
Niebylski, Leonard M., 3,708,380.

European Atomic Energy Community (Euratom): *See—*
Avogadro, Alessandro; and Wurm, Joseph, 3,708,267.

Evans, Arthur D., to Siliconix Incorporated. Voltage limiter. 3,708,694, Cl. 307-237.000.

Evans, Howard L. Corner construction for a corrugated box. 3,708,103, Cl. 229-35.000.

Evans, Marvin: *See—*
Miller, Joseph G.; Stichman, John H.; and Bernstein, Theodore, 3,708,685.

Evans, Robert W.: *See—*
Dunfee, Danny D.; Evans, Robert W.; and Grimm, Richard C., 3,707,918.

Eversman Mfg. Company, The: *See—*
Shader, Benjamin A., 3,708,016.

Every, Peter: *See—*
Riordan, Hugh E.; Every, Peter; and Hill, Frank E., 3,708,214.

EVG Entwicklungs- und Verwertungsgesellschaft m.b.H.: *See—*
Ritter, Klaus; Gott, Hans; Ritter, Josef; and Ritter, Gerhard, 3,708,646.

Ewald, Gunter: *See—*
Buchfuhrer, Gerhard; Dudszus, Alfred; Milles, Wilhelm; Lerche, Franz; Feyer, Gunter; Krause, Manfred; Grunwald, Josef; Hensel, Ulrich; Aust, Ingo; Ewald, Gunter; Langer, Walter; Ludke, Gunther; Mohle, Karl-Georg; Oberlander, Joachim; Kowalski, Horst; Gatzk, Eckard; Pernaux, Gerd; Schwank, Otto; Leschnewski, Konrad; Brose, Reinhard; Hartwig, Gunter; and Ploetz, Ulrich, 3,708,100.

Ewing, Joseph B., Jr. Cantilever support. 3,708,038, Cl. 182-150.000.

Exotech Incorporated: *See—*
Hall, James M.; and Clipp, Louis L., 3,708,121.

Factory Mutual Research Corporation: *See—*
Yao, Cheng, 3,708,015.

Fahey, Thomas D.; and Schlagel, Samuel, to Steel Storage Systems, Inc. Steel racking apparatus. 3,708,074, Cl. 211-151.000.

Fajen, Lyle A., to Motorola, Inc. Biasing network for transistors. 3,708,756, Cl. 330-29.000.

Falk, Willi, to Deutschne Edelstahlwerke A.G. Insert for cutting tool. 3,707,747, Cl. 29-95.000.

Farbenfabriken Bayer Aktiengesellschaft: *See—*
Rucker, Dietrich; Bossert, Friedrich; Meyer, Horst; and Vater, Wulf, 3,708,489.
Thoma, Wilhelm; Oertel, Harald; and Rinke, Heinrich, 3,708,453.

Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning: *See—*
Hahn, Helmut; Scherer, Otto; and Rebsdat, Siegfried, 3,708,538.
Happe, Wilhelm; and Schladetsch, Hans Jakob, 3,708,596.
Loffler, Wilhelm; and Rieber, Martin, 3,708,328.
Lowenfeld, Rudolf; and Kosubek, Uwe, 3,708,257.
Rupp, Walter; and Beermann, Claus, 3,708,460.
Von Der Eltz, Hans-Ulrich; Gunther, Dieter; Krell, Karl-Heinz; Matterstock, Karl; and Vollmann, Hansjorg, 3,708,258.

Farkas, Zoltan D. Avalanche breakdown sinusoidal oscillator. 3,708,760, Cl. 331-107.00r.

Farrington Business Machines Corporation: *See—*
Patterson, James M., Jr., 3,707,911.

Farrissey, William J., Jr.: *See—*
Alberino, Louis M.; Farrissey, William J., Jr.; and Rose, James S., 3,708,458.

Faure, Alphonse W., to C.S.S. Machine & Tool Company, Inc. Unstable ware push plate. 3,708,052, Cl. 198-24.000.

Fauser, Edwin: *See—*
Schirmer, Gunter; and Fauser, Edwin, 3,708,659.

Faust, Werner, to Aktiengesellschaft Brown, Boveri & Cie. Compound electrical circuit unit comprising a main power type thyristor and auxiliary control semiconductor elements structurally and electrically united to form a compact assembly. 3,708,732, Cl. 37-235.00r.

Feiertag, Orrin G.: *See—*
Bock, John W.; Feiertag, Orrin G.; and Sullivan, Raymond J., 3,708,664.

Fein, Harry. Asynchronous data transmission apparatus and method. 3,708,752, Cl. 325-38.000.

Feldheim, Andrew: *See—*
Feldheim, Gabor Z.; and Feldheim, Andrew, 3,708,062.

Feldheim, Gabor Z.; and Feldheim, Andrew. Eyehook fastener automatic installing machine. 3,708,062, Cl. 206-56.0df.

Felgel-Farnholz, Richard Von, to Fernseh G.m.b.H. Color TV reproduction unit using laser beams. 3,708,616, Cl. 178-5.40r.

Fenton, Donald M., to Union Oil Company of California. Condensation of ammonia or a primary or secondary amine with an alcohol. 3,708,539, Cl. 260-585.00b.

Fergusin, Joseph B.: *See—*
Rawson, Edward B.; and Fergusin, Joseph B., 3,708,785.

Ferguson, Virgil D.: *See—*
Holder, Ronald W.; and Ferguson, Virgil D., 3,708,089.

Fernseh G.m.b.H.: *See—*
Felgel-Farnholz, Richard Von, 3,708,616.
Radecke, Helmut, 3,708,753.

Ferrex Corporation: *See—*
Ferrier, Hermann A.; and MacGinitie, Gordon F., 3,708,693.

Ferrier, Hermann A.; and MacGinitie, Gordon F., to Ferrex Corporation. Gamma corrector. 3,708,693, Cl. 307-229.000.

Ferstandig, Louis L.: *See—*
Conner, Rex C.; and Ferstandig, Louis L., 3,707,843.

Feyer, Gunter: *See—*
Buchfuhrer, Gerhard; Dudszus, Alfred; Milles, Wilhelm; Lerche, Franz; Feyer, Gunter; Krause, Manfred; Grunwald, Josef; Hensel, Ulrich; Aust, Ingo; Ewald, Gunter; Langer, Walter; Ludke, Gunther; Mohle, Karl-Georg; Oberlander, Joachim; Kowalski, Horst; Gatzk, Eckard; Pernaux, Gerd; Schwank, Otto; Leschnewski, Konrad; Brose, Reinhard; Hartwig, Gunter; and Ploetz, Ulrich, 3,708,100.

Fielder, James C., to Diamond National Corporation. Tabulating type ballot. 3,708,656, Cl. 235-61.12r.

Finke, Adele: *See—*
Finke, Arno; and Bosse, Frank, 3,708,377.

Finke, Arno; deceased (by Finke, Adele; sole heiress); and Bosse, Frank, to Maschinenfabrik Windmoller & Holscher. Machine for manufacturing heat-sealed bags. 3,708,377, Cl. 156-582.000.

Firestone, Raymond A., to Merck & Co., Inc. [2-(Dihalophosphinyl)-1-methylvinyl] onium halides. 3,708,535, Cl. 260-543.00p.

Firestone Tire and Rubber Company, The: *See—*
Harr, George B., 3,708,330.

First National Bank of Chicago, The: *See—*
Krueger, Harvey R.; and Reynolds, Donald S., 3,708,637.

First, Philip E., to Scovill Manufacturing Company. Intercommunication system for apartment, office building and the like. 3,708,629, Cl. 179-37.000.

Firth, Jay A.; and Frump, John A., to Commercial Solvents Corporation. Method of marking the skin or fur of animals. 3,708,334, Cl. 117-141.000.

Fischer, Adolf: *See—*
Rohr, Wolfgang; Koenig, Karl-Heinz; and Fischer, Adolf, 3,708,471.

Fischer, Charles Frederick: *See—*
Compa, Russell Edward; Fischer, Charles Frederick; Hunter, Robert Tweedy, Jr.; and Odioso, Raymond Camillus, 3,708,425.

Fisher, Adolf: *See—*
Zeidler, Adolf; Fisher, Adolf; and Weiss, Guenther, 3,708,277.

Fisher, Edward I., to Textron, Inc. Nail feed mechanism. 3,708,097, Cl. 227-136.000.

Fitzgearld, Joseph J.: *See—*
Mayo, Kenneth E.; and Fitzgearld, Joseph J., 3,708,268.

Fitzgerald, Charles S.: *See—*
Askren, Lee T.; and Fitzgerald, Charles S., 3,708,226.

Fitzsimmons, Thomas E.: *See—*
Roebelen, George J., Jr.; and Fitzsimmons, Thomas E., 3,707,757.

Fleck, John F., to Owens-Illinois, Inc. Method of lifting a T.V. funnel mold ring off a mold, orienting it into position, and setting on funnel mold. 3,708,274, Cl. 65-307.000.

Fleischer, Danville Alfred R.: *See—*
Rhoades, Warren A., Jr.; and Fleischer, Danville Alfred R., 3,707,953.

Fleming, Gordon R., to Energy Conversion Devices, Inc. Electroluminescent array and method and apparatus for controlling discrete points on the array. 3,708,717, Cl. 315-169.0tv.

Flick, Francis S., to Miller Fluid Power Corporation, mesne. Piston and rod assembly for piston and cylinder devices. 3,708,188, Cl. 287-20.00p.

Flink, Herbert M.: *See—*
Ellison, John E.; and Flink, Herbert M., 3,707,992.

Flint, Theodore R. Elastomeric tape. 3,708,379, Cl. 161-36.000.

Flodin, Karl Borje Yngve, to Domkraft AB Nike. Arrangement at hydraulic lifting jacks. 3,707,886, Cl. 74-547.000.

Fmai, Franco: *See—*
Cassar, Luigi; Chiusoli, Gian Paolo; Foa, Marco; Losco, Giuseppe; and Fmai, Franco, 3,708,518.

Foa, Marco: *See—*
Cassar, Luigi; Chiusoli, Gian Paolo; Foa, Marco; Losco, Giuseppe; and Fmai, Franco, 3,708,518.
Cassar, Luigi; Foa, Marco; and Chiusoli, Gian Paolo, 3,708,529.

Fogelson, Richard C.: *See—*
Mabrey, Lindell E.; and Fogelson, Richard C., 3,707,792.

Ford Motor Company: *See—*
Jania, Zbigniew J.; and Vanderberg, Lawrence J., 3,708,031.

Fork, Kurt: *See—*
Hoffmann, Manfred; Fork, Kurt; and Schulze, Peter, 3,708,718.

Forlini, Matthew; Lowell, Francis C.; and Saxe, Robert L., to Research Frontiers, Inc. Light valve with flowing fluid suspension. 3,708,219, Cl. 350-150.000.

Forshey, David R.: *See—*
Mason, Charles M.; and Forshey, David R., 3,708,356.

Fort, George E., to American Standard Inc. Cross-track switch. 3,707,921, Cl. 104-99.000.

Fox, Homer M.: *See—*
Ruehlen, Forrest N.; and Fox, Homer M., 3,708,416.

Foxboro Company, The: *See—*
Vanslette, Robert A., 3,708,411.

Franck, Heinz-Gerhard; Metzendord, Walter; Turowski, Johannes; deceased (by Turowski, Eles, Paula Marie; heir); Omran, Jaafar; and Nijssen, Jozef H. G., to Rutgerswerke Aktiengesellschaft. Process for preparing foam materials resistant to pressure and heatfrom mixtures of bituminous masses and phenolic resins. 3,708,442, Cl. 260-2.50f.

Frankel, Ernst G., to Interstate Oil Transport Co. Floating stable terminal. 3,707,934, Cl. 114-.50r.

Franklin Electric Co., Inc.: *See—*
Whitney, John A.; and Woods, Richard E., 3,708,720.

Frankovich, George J., to Kennecott Copper Corporation. Method of producing a wholly integral anode for electrolytic refining of metals. 3,707,764, Cl. 29-527.600.

Frazer, John S., to Union Carbide Corporation. Removable funnel for containers. 3,708,092, Cl. 222-567.000.

Free-Flow Packaging Corporation: *See—*
Fuss, Gunter G., 3,708,208.

Freed, Paul S., to United States of Health, Education and Welfare. Balloon cardiac assisting pump having intraaortic electrocardiographic electrodes. 3,707,960, Cl. 128-206.00e.

Freeman, Gary Michael, to Gilford Instrument Laboratories, Inc. Timing device for automatic sampling apparatus. 3,707,875, Cl. 73-423.00a.

Frei, Armin Heinz; and Vettiger, Peter, to International Business Machines Corporation. High-speed analog switching with FET. 3,708,699, Cl. 307-304.000.

Frei, Walter: *See—*
Kuhnle, Willi; and Frei, Walter, 3,708,047.

Freter, Kurt: *See—*
Merz, Herbert; Freter, Kurt; and Zeile, Karl, 3,708,597.

Frevel, Ludo K.; and Kressley, Leonard J., to Dow Chemical Company, The. Alkyl amidosulfinic acid (bis-alkylamine) salts and method for their preparation. 3,708,526, Cl. 260-501.120.

Frezzoiini, James: *See—*
Crawford, James J.; and Frezzoiini, James, 3,708,738.

Frezzolini Electronics, Inc.: *See—*
Crawford, James J.; and Frezzoiini, James, 3,708,738.

Frick, Hughie R.: *See—*
Anderson, Richard W.; and Frick, Hughie R., 3,708,483.

Fricker, Karl: *See—*
Limpinsel, Gunter; and Fricker, Karl, 3,708,128.

Friedgen, Arthur H.; and Nohrenberg, Warren R. Fishing rod holder. 3,708,141, Cl. 248-42.000.

Friedman, Bernard S., to Atlantic Richfield Company. Benzylhalide carbonylation process. 3,708,530, Cl. 260-515.00p.

Friedrich Uhde GmbH: *See—*
Neuhaus, Heinz; and Peters, Henning, 3,707,881.

Fritts, Russell A.: *See—*
Reinhart, Donald R.; and Fritts, Russell A., 3,708,318.

Fruit, Jerry L., to Menson Corporation. Precision pressure manometer. 3,707,868, Cl. 73-4.000.

Frulla, Floro F.; Odinak, Alec; and Sayigh, Adnan A. R., to Upjohn Company, The. Reclaiming scrap polyisocyanurate foam with an aliphatic diol and a dialkandlamine. 3,708,440, Cl. 260-2.300.

Frump, John A.: *See—*
Firth, Jay A.; and Frump, John A., 3,708,334.

Frye, Helmut: *See—*
Nickel, Ernst Gunter; Severin, Hans Peter; and Frye, Helmut, 3,708,600.

Fuchs Electrical Industries (Proprietary) Limited: *See—*
Schreckenberg, Karl; Klein, Louis; and Read, Lorenzo Antonio, 3,708,771.

Fuhrmann, Robert; Pisanchyn, John; and Sifniades, Stylianos, to Allied Chemical Corporation. α-Nitro-ω-oximino cycloalkanones as fungicides. 3,708,595, Cl. 424-327.000.

Fuji Photo Film Co., Ltd.: *See—*
Ishida, Hiroshi; Isozaki, Isamu; and Mukai, Minoru, 3,707,824.
Matsumoto, Seiji; and Tamai, Yasuo, 3,707,943.
Shimamura, Isao; Iijima, Yoo; and Iwano, Haruhiko, 3,708,299.

Fujimoto, Edward K.; Buckman, Walter R.; and Grezlikowsii, Edmund J., to Allied Chemical Corporation. Potassuim hydroxide wafers and process for their preparation. 3,708,339, Cl. 136-153.000.

Fujisawa, Seiji: *See—*
Nakabe, Ryuhei; Fujisawa, Seiji; Sugihara, Yasuhiro; and Meki, Norio, 3,708,613.
Nakabe, Ryuhei; and Fujisawa, Seiji, 3,708,614.

Fujiwara, Shigeru; Nagae, Kenji; and Okuhashi, Tomomi, to Teijin Limited. Electrically conductive filament. 3,708,335, Cl. 117-226.000.

Fukatsu, Kazuyoshi, to Toyoda Koki Kabushiki Kaisha. Fluid pressure pulsation absorbers. 3,707,879, Cl. 92-48.000.

Fukuda, Hideo: *See—*
Karastu, Tetsuo; Sasaki, Hiroshi; and Fukuda, Hideo, 3,708,461.

Fukuda, Tomomitsu, to Pentel Kabushiki Kaisha. Ball holder of ball-point pen. 3,708,234, Cl. 401-216.000.

Fukushige, Shinobu: *See—*
Kishida, Tohru; Arikawa, Tadashi; Matsuyama, Shigeru; and Fukushige, Shinobu, 3,708,314.

Fuller, Francis M.: *See—*
Godley, Augustus P.; Fuller, Francis M.; Houk, Charles R.; Holland, Henry A. Nelson; and Gendron, George J., 3,707,847.

Fuller, Maurice D., to Korry Manufacturing Company. Front-mounted, clamp-to-hold electrical cartridge with swing-aside, push-to-test cap thereon. 3,708,640, Cl. 200-167.00a.

Furukawa Electric Co. Ltd.: *See—*
Tashiro, Kenichi; Furuto, Yoshio; Shigihara, Takeji; Ikawa, Kazuo; and Okano, Yukimitsu, 3,708,675.

Furukawa Electric Company Limited, The: *See—*
Kamata, Yoshihiro, 3,708,405.

Furuto, Yoshio: *See—*
Tashiro, Kenichi; Furuto, Yoshio; Shigihara, Takeji; Ikawa, Kazuo; and Okano, Yukimitsu, 3,708,675.

Fuss, Gunter G., to Free-Flow Packaging Corporation. System for selective distribution of light weight materials. 3,708,208, Cl. 302-28.000.

GAF Corporation: *See—*
Doss, Nagib A., 3,708,259.
Kalven, Alex E., 3,708,058.

Gailaway, Bob M.: *See—*
Bynum, Douglas, Jr.; and Gailaway, Bob M., 3,707,901.

Galantay, Eugene E., to Sandoz-Wander, Inc. Homogonane derivatives. 3,708,541, Cl. 260-590.000.

Gamon-Camet Industries, Inc.: *See—*
Masson, Narinder; Korenicki, William John; and Lechner, Walter Ludwig, 3,707,872.

Ganzler, Wolfgang; Schroder, Gunter; and Huch, Peter, to Rohm & Haas G.m.b.H. Foamed and foamable copolymers. 3,708,444, Cl. 260-2.50n.

Garbalizer Corporation of America: *See—*
Brewer, John C., 3,708,127.

Gardner-Denver Company: *See—*
Stillwagon, George B., Jr., 3,707,894.

Garland Steel Company: *See—*
Campbell, George L., 3,708,187.

Gasc, Jean-Claude: *See—*
Nedelec, Lucien; and Gasc, Jean-Claude, 3,708,474.

Gatzke, Eckard: *See—*
Buchfuhrer, Gerhard; Dudszus, Alfred; Milles, Wilhelm; Lerche, Franz; Feyer, Gunter; Krause, Manfred; Grunwald, Josef; Hensel, Ulrich; Aust, Ingo; Ewald, Gunter; Langer, Walter; Ludke, Gunther; Mohle, Karl-Georg; Oberlander, Joachim; Kowalski, Horst; Gatzk, Eckard; Pernaux, Gerd; Schwank, Otto; Leschnewski, Konrad; Brose, Reinhard; Hartwig, Gunter; and Ploetz, Ulrich, 3,708,100.

Gaylord Associates: *See—*
Gaylord, Norman G., 3,708,555.

Gaylord, Norman G., to Gaylord Associates. Grafting of a mixture of styrene and maleic anhydride onto backbone polymers containing active or labile hydrogen atoms. 3,708,555, Cl. 260-878.00r.

Gebrueder Buhler AG: *See—*
Eisenegger, Edwin E.; and Hefermehl, Hans-Peter, 3,707,774.

Gednalske, Louis. Fishing rod holder with beeper. 3,707,801, Cl. 43-17.000.

Gendron, George J.: *See—*
Godley, Augustus P.; Fuller, Francis M.; Houk, Charles R.; Holland, Henry A. Nelson; and Gendron, George J., 3,707,847.

General Electric Company: *See—*
Bean, Charles P., 3,708,402.
Bock, John W.; Feiertag, Orrin G.; and Sullivan, Raymond J., 3,708,664.
Diehl, Elmer Paul, 3,708,754.
Hamon, Richard Eugene, 3,708,272.
Kelling, Leroy U.C., 3,708,657.
Kohler, Thomas P.; Smith, Marvin W.; and Van Marter, Charles W., 3,708,739.
Mitchell, Graham R., 3,708,638.
Price, Warren R.; and Brownlee, John H., 3,707,748.
Smith, Afred H., Jr.; and Beers, Melvin D., 3,708,467.
Smyser, William E.; and Speros, Dimitrios M., 3,708,710.
Weber, Kurt H., 3,707,903.
Zauderer, Bert, 3,708,704.

General Instrument Corporation: *See—*
Savarese, Giuseppe; Campellone, Giuseppe; De Luccia, Bruno; and Russo, Giovanni, 3,708,757.

General Latex and Chemical Corporation: *See—*
Junas, Thomas B.; and La Torre, Augustin, 3,708,445.

General Mills, Inc.: *See—*
Johnson, George E.; and Rohleder, Penelope C., 3,708,309.

General Tire & Rubber Company, The: *See—*
Grant, Bernard Carrington; and Reilly, John F., 3,708,367.
Henley, Virgil E., 3,707,749.

Georgopoulos, Christos J., to Raytheon Company. Phase shifter driver amplifier. 3,708,697, Cl. 307-270.000.

Gerling, Paul, to Glyco-Metall-Werke Daelen & Loos GmbH. Adjustable bearing. 3,708,216, Cl. 308-73.000.

Germer, John A., to Budd Company, The. Lateral railway spring suspension system. 3,707,920, Cl. 105-210.000.

Germer, John A., to Budd Company, The. Vertical railway spring suspension system. 3,707,928, Cl. 105-210.000.

Germer, John A. Brake spring apparatus. 3,708,039, Cl. 188-62.000.

Geurts, Leonardus H.: *See—*
Thomas, Jozef A.; Klein, Joseph F. M.; and Geurts, Leonardus H., 3,708,515.

Gevaert-Agfa N.V.: *See—*
Timmerman, Daniel Maurice; Van Paesschen, August Jean; and Verhille, Karel Eugeen, 3,708,289.

Gewerkschaft Victor Chemische Werke: *See—*
Hecht, Horstmar; and Schwandt, Horst, 3,708,276.

Geyer, Robert P.; and Gierlach, Robert W., to Standard Car Truck Company. Resilient truck side bearing. 3,707,927, Cl. 105-199.0cb.

Geyken, Erwin; Krauss, Siegfried; Kocourek, Franz; Koninger, Horst; and Schwarzmaier, Gerhard, to Agfa-Gevaert Aktiengesellschaft. Film drying apparatus. 3,707,777, Cl. 34-48.000.

Ghisalba S.p.A. Turin: *See—*
Caltabiano, Alfio, 3,708,769.

Giarrusso, Frederick F.: *See—*
Welch, Arnold D.; Dolfini, Joseph Edward; and Giarrusso, Frederick F., 3,708,479.

Gibbon, John D. Fibrillation process. 3,707,837, Cl. 57-157.00f.

Gierlach, Robert W.: *See—*
Geyer, Robert P.; and Gierlach, Robert W., 3,707,927.

Gilbert, Barrie, to Tektronix, Inc. Large scale integrated circuit of reduced area including counter. 3,708,691, Cl. 307-225.00b.

Gilbert, Bony. Electrically controlled dielectric panel lens. 3,708,796, Cl. 343-754.000.

Gilev, Vitaly Konstantinovich; Ovanesov, Jury Vagarshevich; Sarkisov, Rafael Tevosovich; and Stepanyan, Ernst Arakelovich. Device for stacking stator laminations. 3,708,054, Cl. 198-33.0ac.

Gilev, Vitaly Konstantinovich; Popov, Vyacheslav Dmitrievich; Sarkisov, Rafael Tevosovich; and Stephanian, Ernst Arakelovich. Charging device for automatic punch-presses. 3,708,165, Cl. 271-62.00r.

Gilford Instrument Laboratories, Inc.: *See—*
Freeman, Gary Michael, 3,707,875.

Gilgo, Horace Paul: *See—*
Bell, Cecil R.; Swaim, Jessie E.; Gilgo, Horace Paul; Rogers, Robert C.; Sizemore, Walter Ray; and Orr, Samuel M., Jr., 3,707,825.

Gillot, Jacques: *See—*
Aubry, Bernard; Gillot, Jacques; Masselot, Yves; and Teboul, Albert, 3,708,157.

Girling Limited: *See—*
Rath, Heinrich Bernhard; and Hess, Wolfgang, 3,708,043.

Glastool Corporation, mesne: *See—*
McNally, George P.; and Jonasch, Edward A., 3,707,835.

Glaxo Laboratories Limited: *See—*
Chapman, John H.; and Staniforth, Susan E., 3,708,478.

Glushko, Mikhail Fedorovich; Skalatsky, Viktor Klimentievich; and Skripnik, Ivan Timofeevich, to Odessky Politekhnichesky Institut. Method of making a closed layer of shaped wire in wire ropes, etc. 3,707,839, Cl. 57-161.000.

Glyco-Metall-Werke Daelen & Loos GmbH: *See—*
Gerling, Paul, 3,708,216.

Go, Junichi. Method and device for power transmission transfer. 3,707,884, Cl. 74-372.000.
Godley, Augustus P.; Fuller, Francis M.; Houk, Charles R.; Holland, Henry A. Nelson; and Gendron, George J., to Raymond International Inc. Installation of sand drains. 3,707,847, Cl. 61-11.000.
Goetz, Frederick J.: *See—*
Hofmeister, Richard J.; Steele, Thomas R.; and Goetz, Frederick J., 3,708,618.
Goffe, William L., to Xerox Corporation. Oil film imaging. 3,708,287, Cl. 96-1.300.
Goldfarb, Adolph E.: *See—*
Strader, George C.; and Goldfarb, Adolph E., 3,708,168.
Goldsmith, Robert L.: *See—*
Timmins, Robert S.; Horton, Bernard S.; and Goldsmith, Robert L., 3,707,770.
Golliher, Waldo R.; Harris, Robert L.; and Le Doux, Reynold A., Jr., to United States of America, Atomic Energy Commission. Removal of plutonium from plutonium hexafluoride-uranium hexafluoride mixtures. 3,708,568, Cl. 423-6.000.
Golob, Theodore B.: *See—*
Duffty, Bryan; Golob, Theodore B.; Jasinski, Stanley C.; and Zwart, Jack, 3,708,000.
Gomez, Jacinto Salvado: *See—*
Soler, Federico Martinez; and Gomez, Jacinto Salvado, 3,708,025.
Good, Wayne W., to Harter Corporation. Chair back rest joint. 3,708,189, Cl. 287-100.000.
Goodrich, B. F., Company, The: *See—*
Eden, Jamal S., 3,708,434.
Kamenick, Rudolph J., 3,707,883.
Goodyear Aerospace Corporation: *See—*
Martin, Gregory L., 3,708,619.
Goodyear Tire & Rubber Company, The: *See—*
Roberts, Donald L., 3,708,007.
Goodyear Tire & Rubber, The: *See—*
Woodling, Gerald L., 3,707,923.
Goransson, Rolf Erik, to Internationella Siporex Aktiebolaget. Mold for casting cellular concrete bodies. 3,708,148, Cl. 249-111.000.
Gordon, Robert E., to Mueller Steam Specialty Division SOS Consolidated. Adjustable valve assembly. 3,707,987, Cl. 137-543.000.
Gore, William C.; and Shapiro, Eugene B., to Beatrice Foods Company. Flapper flush valve. 3,707,733, Cl. 4-57.00p.
Gott, Hans: *See—*
Ritter, Klaus; Gott, Hans; Ritter, Josef; and Ritter, Gerhard, 3,708,646.
Gottfried, Siegfried, to Biorex Laboratories Limited. Method for the treatment of atherosclerosis employing glucuronoglycosaminoglycan hyaluronate lyase. 3,708,575, Cl. 424-94.000.
Goulds Pump Incorporated: *See—*
Ray, Edward C.; and Kahabka, William P., 3,707,759.
Grace, W. R., & Co.: *See—*
Das, Naba K., 3,708,578.
Kehr, Clifton L.; and Wszolek, Walter R., 3,708,413.
Levy, Newton, Jr., 3,708,438.
Triggiani, Leonard V.; Haberman, Norton; and Sanchez, Moises G., 3,708,432.
Grady, Clarence A. Automotive tent framework and covering therefor. 3,707,977, Cl. 135-1.00a.
Graham, Leslie Wilfred: *See—*
Voice, Eric Handley; Graham, Leslie Wilfred; and Sturge, Derek William James, 3,708,559.
Grakauskas, Vytautas, to United States of America, Navy, mesne. Preparation of fluoramine. 3,708,571, Cl. 423-413.000.
Grancher, Pierre: *See—*
Douchet, Charles; Grancher, Pierre; and Vecchiutti, Robert, 3,708,542.
Grangaard, Orrin H.; and Peake, Ernest R., to Stage-Brite Inc. Circuitry for controlling A.C. power. 3,708,743, Cl. 323-22.0sc.
Grant, Bernard Carrington; and Reilly, John F., to General Tire & Rubber Company, The. Replaceable seat insert and process of making. 3,708,367, Cl. 156-267.000.
Gravereaux, Daniel W.: *See—*
Bauer, Banjamin B.; and Gravereaux, Daniel W., 3,708,631.
Graves, Thomas M., to Chevron Research Company. Seed coating composition. 3,707,807, Cl. 47-57.600.
Greenbaum, Sheldon B.; Hacke, Walter; and Horn, Herman, to Diamond Shamrock Corporation. Process for preparation of D,L-alpha tocopherol. 3,708,505, Cl. 260-345.500.
Greensides, Geoffrey Charles: *See—*
Alexander, David George; Lloyd, Anthony Michael; Greensides, Geoffrey Charles; and Thompson, David Harry, 3,708,512.
Greenwood, James. Cosmetic stick holder. 3,708,236, Cl. 401-60.000.
Grell, Wolfgang: *See—*
Kutter, Eberhard; Griss, Gerhart; Grell, Wolfgang; and Kleemann, Manfred, 3,708,486.
Gresham, James T.: *See—*
Thomas, Gordon D.; and Gresham, James T., 3,708,383.
Grezlikowsii, Edmund J.: *See—*
Fujimoto, Edward K.; Buckman, Walter R.; and Grezlikowsii, Edmund J., 3,708,339.
Griffin, Benjamin John. Manual torsional exerciser. 3,708,164, Cl. 272-68.00.
Griffiths, William R.; Johnston, Donald E.; Yates, John S.; and Layer, Gerard E., to Susquehanna Corporation, The. Aircraft shaped tow target. 3,708,138, Cl. 244-16.000.
Grimm, Richard C.: *See—*
Dunfee, Danny D.; Evans, Robert W.; and Grimm, Richard C., 3,707,918.
Grinevich, Feodosy Borisovich; and Tsyganok, Vladimir Andreevich, to Institut Elektrodinamiki Akademii Nauk Ukrainskoi SSR. Bistable counting circuit based on a transistor. 3,708,698, Cl. 307-289.000.
Griot, Rudolf G., to Sandoz, Inc. Substituted-2-4-(ω-aminoalkoxy) phenyl imidazoles as cholesterol reducing agents. 3,708,598, Cl. 424-273.000.
Griss, Gerhart: *See—*
Kutter, Eberhard; Griss, Gerhart; Grell, Wolfgang; and Kleemann, Manfred, 3,708,486.
Gritt, William E.: *See—*
Aull, Louis J.; and Gritt, William E., 3,708,065.
Gronemeyer, Erich W.; and Kutik, Louis F. Closure fitment. 3,708,083, Cl. 215-41.000.
Grose, William L.: *See—*
Trimpi, Robert L.; Nealy, John E.; and Grose, William L., 3,708,674.
Grosseau, Albert, to S.A. Automobiles Citroen. Expandible honing heads. 3,707,810, Cl. 51-346.000.
Grotewold, Hans W.; and Bryan, Don S. Method for preparing citrus halves. 3,708,003, Cl. 99-233.110.
Grover, Scott C.: *See—*
Richens, Kenneth A.; Grover, Scott C.; Allred, James K.; and Shook, James H., 3,708,077.
Groves, James D., to Minnesota Mining and Manufacturing Company. Certain perfluoroalkylsulfonamides. 3,708,537, Cl. 260-556.00f.
Grundon, Forrest Robert; Masterson, Frank Harrison; Wagler, Robert John; and Wustrau, Fred Ernest, to International Business Machines Corporation. Automatic photoresist apply and dry apparatus. 3,707,944, Cl. 118-50.000.
Grunwald, Josef: *See—*
Buchfuhrer, Gerhard; Dudszus, Alfred; Milles, Wilhelm; Lerche, Franz; Feyer, Gunter; Krause, Manfred; Grunwald, Josef; Hensel, Ulrich; Aust, Ingo; Ewald, Gunter; Langer, Walter; Ludke, Gunther; Mohle, Karl-Georg; Oberlander, Joachim; Kowalski, Horst; Gatzk, Eckard; Pernaux, Gerd; Schwank, Otto; Leschnewski, Konrad; Brose, Reinhard; Hartwig, Gunter; and Ploetz, Ulrich, 3,708,100.
GTE Sylvania Incorporated: *See—*
Rhee, Dong Woo, 3,708,715.
Siwko, Karol, 3,708,620.
GTR Products, Inc.: *See—*
Hertz, Sanford, 3,707,897.
Guckel, Gerhart A., to Dole, James, Corporation. Preserving products in sealed containers. 3,707,823, Cl. 53-112.00r.
Guenard, Pierre; and Epsztein, Bernard, to Thomson-CSF. Travelling wave tubes. 3,708,764, Cl. 332-5.000.
Guerra, Humberta R. Means for detecting dental occlusions and method of use. 3,707,771, Cl. 32-19.000.
Guicherd, Roger: *See—*
Denis, Pierre M.; and Guicherd, Roger, 3,708,667.
Guille, Gilbert James, Jr.: *See—*
Brown, Malcolm George, Jr.; Guille, Gilbert James, Jr.; and Long, George Ernest, III, 3,708,622.
Gulf Oil Corporation: *See—*
Loos, John F.; and Unkle, Truman F., Jr., 3,708,345.
Gulzow, Fritz; and Hartmann, Egon, to Senkingwerk GmbH Kommanditgesellschaft. Washing machines for clothes and other articles. 3,707,858, Cl. 68-143.000.
Gunderloy, Frank C., Jr.: *See—*
Bochinski, Julius H.; Christe, Karl O.; Gunderloy, Frank C., Jr.; Pilipovich, Donald; and Wilson, Richard D., 3,707,762.
Gunn, John B., to International Business Machines Corporation. High DC to low DC voltage converter. 3,708,742, Cl. 321-15.000.
Gunther, Dieter: *See—*
Von Der Eltz, Hans-Ulrich; Gunther, Dieter; Krell, Karl-Heinz; Matterstock, Karl; and Vollmann, Hansjorg, 3,708,258.
Gurkov, Konstantin Stepanovich: *See—*
Nazarov, Nikolai Grigorievich; Chinakal, Nikolai Andreevich; Sudnishnikov, Boris Vasilievich; Kostylev, Alexandr Dmitrievich; Gurkov, Konstantin Stepanovich; and Tupitsyn, Konstantin Konstantinovich, 3,708,023.
Gustavsson, Karl Axel Goran, to Aktiebolaget Bahco Ventilation. Apparatus for cleaning sulphur dioxide-containing flue gases. 3,708,266, Cl. 23-283.000.
Gustavsson, Karl-Axel, to Aktiebolaget Bahco Ventilation. Cyclone separator. 3,707,830, Cl. 55-410.000.
Gutman, Arnold D.; and Baker, Don R., to Stauffer Chemical Company. Method of controlling acarids with certain oxime esters. 3,708,590, Cl. 424-327.000.
Guzay, Casimer M. Carbon dioxide absorber apparatus. 3,707,965, Cl. 128-191.00r.
Haake, Robert; and Ponzi, Joseph J., to Bell & Howell Company. Cassette tray control mechanism. 3,708,176, Cl. 274-4.00f.
Haas, Friedrich: *See—*
Nutzel, Karl; Dinges, Karl; and Haas, Friedrich, 3,708,556.
Haase, Elmer A.; and Kirwin, James M., to Bendix Corporation, The. Diaphragm type fluid seal. 3,707,985, Cl. 137-495.000.
Haberman, Norton: *See—*
Triggiani, Leonard V.; Haberman, Norton; and Sanchez, Moises G., 3,708,432.
Hacke, Walter: *See—*

Greenbaum, Sheldon B.; Hacke, Walter; and Horn, Herman, 3,708,505.

Haddock, Asa H., Jr.; and Howard, Jay W. Adjustable impedance regulating transformer. 3,708,775, Cl. 336-155.000.

Hafele, Carl Heinz. Fast closing valve. 3,708,150, Cl. 251-31.000.

Hafer, Paul R., to Boyertown Auto Body Works. Electrically driven vehicles. 3,708,028, Cl. 180-65.00r.

Hagan Manufacturing Company: *See—*
Spieles, Franklin E., 3,708,321.

Hahn, Emil H., to Lambert Brake Corporation, mesne. Brake. 3,708,041, Cl. 188-72.900.

Hahn, Helmut; Scherer, Otto; and Rebsdat, Siegfried, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. N-fluoroalkyl-sulfonamides and process for preparing them. 3,708,538, Cl. 260-556.00a.

Hahn, Rasso; and Mueller, Curt, to Sandoz Ltd. Disperse phenyl-azo-phenyl dyes. 3,708,468, Cl. 260-207.000.

Hajduk, Marian S. Teaching machine. 3,707,783, Cl. 35-31.00r.

Haldeman, Charles W., III, to Massachusetts Institute of Technology. Magnetic traveling-wave vacuum pump. 3,708,248, Cl. 417-48.000.

Hall, Colin David, to Ralli Bondite Limited. Sealants. 3,708,470, Cl. 260-23.70m.

Hall, James M.; and Clipp, Louis L., to Exotech Incorporated. Apparatus for forming pulse jets of liquid. 3,708,121, Cl. 239-102.000.

Hall, Philip George, to Lever Brothers Company. Cleaning compositions. 3,708,429, Cl. 252-156.000.

Halocarbon Products Corporation: *See—*
Conner, Rex C.; and Ferstandig, Louis L., 3,707,843.

Hammond, Joseph P.: *See—*
Binkley, Norman C.; and Hammond, Joseph P., 3,707,763.

Hamon, Richard Eugene, to General Electric Company. Method of providing a lead wire seal. 3,708,272, Cl. 65-59.000.

Hampel, Gerald, to Optipatent AG. Making epoxy spectacle frames using excess 1-cyclohexylamino-3-aminopropane curing agent. 3,708,567, Cl. 264-331.000.

Hampson, Jack E., to Atco Industries Ltd. Self-packaging portable housing structure. 3,707,811, Cl. 52-23.000.

Hanaya, Morimasa, to Toyo Pulp Co., Ltd. Method and apparatus for washing wood chips. 3,708,063, Cl. 209-3.000.

Hand, John James: *See—*
Spicer, Larry Dean; and Hand, John James, 3,708,490.

Hanes Corporation: *See—*
Bell, Cecil R.; Swaim, Jessie E.; Gilgo, Horace Paul; Rogers, Robert C.; Sizemore, Walter Ray; and Orr, Samuel M., Jr., 3,707,825.

Hannah, John, to Merck & Co., Inc. Amides of cholanic acid, cholenic acid, and choladienic acid. 3,708,510, Cl. 260-397.100.

Hansen, Norbert Ernst; and Wadow, Dieter, to U.S. Philips Corporation. Conrona discharge for electro-static charging. 3,708,661, Cl. 250-49.5zc.

Happe, Wilhelm; and Schladetsch, Hans Jakob, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Disazo dyestuffs. 3,708,596, Cl. 260-174.000.

Hard, Robert A.; and Ripley, Robert L., to Union Carbide Corporation. Process for leaching base elements, such as uranium ore, in situ. 3,708,206, Cl. 299-5.000.

Hardin, Robert H.; and Hill, Keith H., to Martin-Marietta Corporation. Stored program format generator. 3,708,786, Cl. 340-172.500.

Hardwick, David R., to Wagner Electric Corporation. Height control valve. 3,707,993, Cl. 137-636.000.

Hardwig, Ernest B. System for sorting mail bags. 3,708,057, Cl. 198-38.000.

Harper, John: *See—*
Wolfberg, Larry B.; and Harper, John, 3,707,773.

Harper, Roy: *See—*
Cotter, Ashby M., 3,707,772.

Harr, George B., to Firestone Tire and Rubber Company, The. Producing container with foam interior. 3,708,330, Cl. 117-94.00[illegible]

Harrington, Joseph K.; Kvam, Donald C.; Mendel, Arthur [illegible] Robertson, Jerry E., to Riker Laboratories, Inc., mesne. 2-Amino(perfluoroalkylsulfonamidophenyl)thiazoles. 3,708,491, Cl. 260-306.80r.

Harris, Arthur M. Valve for pressurized liquid dispenser. 3,708,090, Cl. 222-402.20.

Harris, Henry B. Boat hull construction. 3,707,936, Cl. 114-665.00p.

Harris, James P.: *See—*
Manzo, Joseph F.; Harris, James P.; Harris, Robert T.; and Mauch, Erwin W., 3,707,744.

Harris, Robert L.: *See—*
Golliher, Waldo R.; Harris, Robert L.; and Le Doux, Reynold A., Jr., 3,708,568.

Harris, Robert T.: *See—*
Manzo, Joseph F.; Harris, James P.; Harris, Robert T.; and Mauch, Erwin W., 3,707,744.

Hart, William S., to Dinaco, Inc. Tire center display apparatus. 3,707,789, Cl. 40-125.00m.

Harter Corporation: *See—*
Good, Wayne W., 3,708,189.

Hartman, John T.: *See—*
Newman, Frederick S.; Thorne, John R.; and Hartman, John T., 3,708,407.

Hartmann, Egon: *See—*
Gulzow, Fritz; and Hartmann, Egon, 3,707,858.

Hartmann Luggage Company: *See—*
Katz, Ira R., 3,708,045.

Hartwig, Gunter: *See—*
Buchfuhrer, Gerhard; Dudszus, Alfred; Milles, Wilhelm; Lerche, Franz; Feyer, Gunter; Krause, Manfred; Grunwald, Josef; Hensel, Ulrich; Aust, Ingo; Ewald, Gunter; Langer, Walter; Ludke, Gunther; Mohle, Karl-Georg; Oberlander, Joachim; Kowalski, Horst; Gatzk, Eckard; Pernaux, Gerd; Schwank, Otto; Leschnewski, Konrad; Brose, Reinhard; Hartwig, Gunter; and Ploetz, Ulrich, 3,708,100.

Hashimoto, Masashi: *See—*
Kamiya, Takashi; and Hashimoto, Masashi, 3,708,497.

Hatley, Lowell J. Fish net retrieval apparatus. 3,707,799, Cl. 43-8.000.

Hattori, Keisuke: *See—*
Mimino, Tohru; Kinoshita, Kazuhisa; and Hattori, Keisuke, 3,708,280.

Haury, Vernon E.: *See—*
United States of America, National Aeronautics and Space Administration, 3,708,359.

Havens, Richard Calvin, to Motorola, Inc. Concentric line negative resistance oscillator. 3,708,761, Cl. 331-107.00r.

Hawker Siddeley Aviation Limited: *See—*
Lyons, James Wilfred, 3,708,795.

Hayakawa, Shigeru: *See—*
Matsuo, Yoshihiro; Sasaki, Hiromu; and Hayakawa, Shigeru, 3,708,315.

Hayashibara Company: *See—*
Mitsuhashi, Masakazu; Hirao, Mamoru; and Sugimoto, Kaname, 3,708,396.

Hazenbosch, Edwin Hendrik: *See—*
Poot, Albert Lucien; and Hazenbosch, Edwin Hendrik, 3,708,297.

Hebeisen, Richard; and Tevault, William, to Jasper Electronics Manufacturing Corporation, The. Electronic organ with rhythmic accompaniment and bass. 3,708,604, Cl. 84-1.030.

Hecht, Horstmar; and Schwandt, Horst, to Gewerkschaft Victor Chemische Werke. Fertilizer coated with discontinuous layer. 3,708,276, Cl. 71-27.000.

Hedin, Jan S., to Ampex Corporation. Interchannel time displacement correction method and apparatus. 3,708,783, Cl. 340-146.01d.

Hedrick, Ross M.: *See—*
Junker, Bernhard T.; Breeding, Terry G.; Hoyt, Michael T.; and Hedrick, Ross M., 3,708,566.

Hefermehl, H. P., S.A.: *See—*
Eisenegger, Edwin E.; and Hefermehl, Hans-Peter, 3,707,774.

Hefermehl, Hans-Peter: *See—*
Eisenegger, Edwin E.; and Hefermehl, Hans-Peter, 3,707,774.

Hegedus, Denes, to Schlage Lock Company. Auxiliary spring unit for locks. 3,708,191, Cl. 292-1.000.

Heinrichs, Gunter: *See—*
Kersten, Hilde; Heinrichs, Gunter; Meyer, Gerhard; and Laudien, Dieter, 3,708,496.

Hekimian Laboratories, Inc.: *See—*
Hekimian, Norris C., 3,708,741.

Hekimian, Norris C., to Hekimian Laboratories, Inc. D.C. to D.C. converter for connection across telephone lines. 3,708,741, Cl. 321-15.000.

Hemsley, William T.: *See—*
Calhoun, William D.; Hemsley, William T.; and Sioberg, Charles M., 3,707,819.

Hendick, Glen W.: *See—*
Lewis, John B.; and Hendick, Glen W., 3,708,450.

Hendriks, Hendrik Adrianus, to De Staat der Nederlanden, ten Deze Vertegenwoordig Door de Directeur-Generaal der Posterijen, Telegrafie en Telefonie. Connection systems. 3,708,628, Cl. 174-60.000.

Henkel & Cie G.m.b.H.: *See—*
Jakobi, Gunter; and Berth, Peter, 3,708,427.

Henley, Virgil E., to General Tire & Rubber Company, The. Variable pressure bed roller. 3,707,749, Cl. 29-113.00r.

Hennings, George W.: *See—*
Burton, Lawrence A.; and Hennings, George W., 3,708,725.

Hensel, Ulrich: *See—*
Buchfuhrer, Gerhard; Dudszus, Alfred; Milles, Wilhelm; Lerche, Franz; Feyer, Gunter; Krause, Manfred; Grunwald, Josef; Hensel, Ulrich; Aust, Ingo; Ewald, Gunter; Langer, Walter; Ludke, Gunther; Mohle, Karl-Georg; Oberlander, Joachim; Kowalski, Horst; Gatzk, Eckard; Pernaux, Gerd; Schwank, Otto; Leschnewski, Konrad; Brose, Reinhard; Hartwig, Gunter; and Ploetz, Ulrich, 3,708,100.

Hercules Incorporated: *See—*
Carpenter, Charles W., 3,708,384.

Hermann, Benito J., Jr., to National Brush Company, mesne. Molded brush head. 3,707,739, Cl. 15-176.000.

Hermann, Edward Charles: *See—*
Aldrich, Paul Edward; and Hermann, Edward Charles, 3,708,588.

Hertz, Sanford, to GTR Products, Inc. Keyboard teaching device. 3,707,897, Cl. 84-479.000.

Herve, Michel; and Rasneur, Bernard, to Commissariat a l'Energie Atomique. Apparatus for automatic and continuous plotting of absorption-desorption isotherms employed for determining the microstructure of porous bodies. 3,707,870, Cl. 73-38.000.

Hess, Wolfgang: *See—*
Rath, Heinrich Bernhard; and Hess, Wolfgang, 3,708,043.

Hester, Jackson B., Jr., to Upjohn Company, The. 2,4-Dihydro-6-phenyl-1H-s-triazola[4,3-a] [1,4] benzodiazepin-1-one compositions and method of treatment. 3,708,592, Cl. 424-269.000.

Hewson, Garfield J., Jr. Golf game. 3,708,173, Cl. 273-176.00a.

Heymes, Rene: *See—*
Martel, Jacques; and Heymes, Rene, 3,708,477.

Hickner, Richard A.; and Bredeweg, Corwin J., to Dow Chemical Company, The. Allyl acetal derivative of one-halo-3-mercapto-2-propanol. 3,708,543, Cl. 260-609.00r.

Higashida, Susumu: *See—*
Murayama, Keisuke; Morimura, Syoji; Higashida, Susumu; Matsui, Katsuaki; Kurumada, Tomoyuki; and Onta, Noriyuki, 3,708,488.

Higson, Harold G.: *See—*
Delta, Vladimir Hach; and Higson, Harold G., 3,708,521.

Hildenbrand, Walter W.; Levine, Wilbur J.; Manning, Stanley A.; and Stroms, Karl F., recorder. $4. 3,708,798, Cl. .

Hill, Frank E.: *See—*
Riordan, Hugh E.; Every, Peter; and Hill, Frank E., 3,708,214.

Hill, Franklin J., to Parker Pen Company, The. Process for preparing cemented ferrochrome. 3,708,283, Cl. 75-200.000.

Hill, George R.: *See—*
Needham, Donald G.; and Hill, George R., 3,708,457.

Hill, Ira D.: *See—*
Mikherjee, Barid B.; Brown, Dale G.; and Hill, Ira D., 3,708,528.

Hill, John L., to Ramsey Engineering Company. Batching system utilizing digital-to-analog subtraction to denote the amount of batched material. 3,708,027, Cl. 177-210.000.

Hill, Keith H.: *See—*
Hardin, Robert H.; and Hill, Keith H., 3,708,786.

Hill, Marion E.: *See—*
Coon, Clifford L.; McDonald, Gerald J.; and Hill, Marion E., 3,708,546.

Hillenbrand, Engelbert, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Recycling melamine synthesis of gas to urea synthesis. 3,708,536, Cl. 260-555.00a.

Hiller, Gary Lynn, to Eastman Kodak Company. Use of divalent metal salt image amplifiers in photosensitive and thermosensitive elements. 3,708,304, Cl. 96-114.100.

Hirao, Mamoru: *See—*
Mitsuhashi, Masakazu; Hirao, Mamoru; and Sugimoto, Kaname, 3,708,396.

Hirsch, Abraham Adler. Sampler-culture apparatus for the detection of coliform bacteria in potable waters. 3,708,400, Cl. 195-127.000.

Hitachi, Ltd.: *See—*
Murai, Tohru, 3,708,793.

Hiyama, Ryu, to Nippon Gakki Seizo Kabushiki Kaisha. Electronic organ with automatic chord and bass systems. 3,708,602, Cl. 83-1.030.

Hodgson, Robert F., to Commercial Shearing & Stamping Company. Control valves. 3,707,988, Cl. 137-596.120.

Hoffman, Albert H.: *See—*
Ziegler, Carrell G.; and Hoffman, Albert H., 3,708,034.

Hoffmann, Manfred; Fork, Kurt; and Schulze, Peter, to Siemens Aktiengesellschaft. Electrical switching device. 3,708,718, Cl. 317-11.00b.

Hoffmann-La Roche Inc.: *See—*
Berger, Julius, 3,708,577.
Rosenberger, Michael; and Saucy, Gabriel, 3,708,500.

Hofman, Bernard L. Mechanical speed ratchet. 3,707,893, Cl. 81-58.100.

Hofmann, John J.: *See—*
Alexander, Harold M.; Mattimoe, Paul T.; and Hofmann, John J., 3,708,386.

Hofmeister, Richard J.; Steele, Thomas R.; and Goetz, Frederick J., to Motorola, Inc. Modular television receiver. 3,708,618, Cl. 178-7.900.

Hogel, Joseph E., to Honeywell, Inc. Snap action pneumatic relay. 3,707,982, Cl. 137-119.000.

Hojyo, Yasuo: *See—*
Matsuda, Ryoichi; Terai, Masaaki; and Hojyo, Yasuo, 3,708,630.

Hoke, Donald Irvin, to Lubrizol Corporation, The. Graft copolymers containing N-3-oxohydrocarbon-substituted acrylamide units. 3,708,447, Cl. 260-17.4gc.

Hokko Chemical Industry Co., Ltd.: *See—*
Okamoto, Hiromu; Ohi, Takuo; Tamura, Jyotaro; Takahashi, Saburo; Oyama, Hiroshi; Ueda, Hideo; Sasaki, Kunihiko; and Ishikawa, Hiromichi, 3,708,278.

Holder, Ronald W.; and Ferguson, Virgil D., to North American Rockwell Corporation. Gas generator for liquid sprayers. 3,708,089, Cl. 222-396.000.

Holland, Henry A. Nelson: *See—*
Godley, Augustus P.; Fuller, Francis M.; Houk, Charles R.; Holland, Henry A. Nelson; and Gendron, George J., 3,707,847.

Hollingsead, Robert Allen; and Pryor, Clyde Robert, to Hollingsead-Pryor Enterprises, Inc. Relay base apparatus having a retaining clip mounted thereon. 3,708,642, Cl. 200-168.00c.

Hollingsead-Pryor Enterprises, Inc.: *See—*
Hollingsead, Robert Allen; and Pryor, Clyde Robert, 3,708,642.

Hollnagel, Harold S., to Kelsey-Hayes Company. Disk brake with servo action. 3,708,040, Cl. 188-72.200.

Holly, Harry H.: *See—*
Theis, James V., Jr.; McCord, John B.; and Holly, Harry H., 3,708,241.

Holly, James A., to Hollymatic Corporation. Fastener. 3,707,898, Cl. 85-3.00r.

Hollymatic Corporation: *See—*
Holly, James A., 3,707,898.
Theis, James V., Jr.; and Davis, Lynn M., 3,708,240.
Theis, James V., Jr.; McCord, John B.; and Holly, Harry H., 3,708,241.

Holmberg, Joyce D.; and Allgeyer, Earl R., to Marley Company, The. Cooling tower fan blade assembly having yieldable, expendable tip. 3,708,155, Cl. 261-24.000.

Holter, Samuel N., to Koppers Company, Inc. Process for preparing benzoquinone. 3,708,509, Cl. 260-396.00r.

Holton, Samuel Pearce, II. Tear gas fire arm means. 3,707,793, Cl. 42-1.00g.

Holzer Patent AG: *See—*
Holzer, Walter K., 3,707,876.

Holzer, Walter K., to Holzer Patent AG. Time switching apparatus with controllable step-by-step time durations. 3,707,876, Cl. 74-3.520.

Honda, Yuitsu: *See—*
Ishimoto, Sachio; Togawa, Haruo; Honda, Yuitsu; and Saiki, Noritsugu, 3,708,534.

Honeywell, Inc.: *See—*
Bentsen, Louis J., 3,708,115.
Hogel, Joseph E., 3,707,982.
Lofgren, Harold C., 3,708,412.
Zoerb, Edward G., 3,707,979.

Honeywell Information Systems Inc.: *See—*
Marinkovic, Zoran, 3,708,672.

Hood, H. P., Sons, Inc.: *See—*
Lundstedt, Erik, 3,708,307.

Hoover Ball and Bearing Company: *See—*
Platte, Richard L., 3,708,082.

Hoover Company, The: *See—*
Camprubi, Bartholomew; and Capron-Tee, Grahame Gerald, 3,708,120.

Hopkins, Byrd, to Monsanto Company. Pressure monitored temperature controlled system for a liquid-vapor process. 3,708,658, Cl. 235-151.120.

Hopt Electronic GmbH, Firma: *See—*
Volkheimer, Lothar, 3,708,777.

Horimoto, Kohei; Kawamura, Masaharu; Norota, Susumu; and Okui, Mitsuhiko, to Teijin Limited. Process for producing non-woven filamentary structure. 3,708,561, Cl. 264-22.000.

Horn, Herman: *See—*
Greenbaum, Sheldon B.; Hacke, Walter; and Horn, Herman, 3,708,505.

Hornfeck, Josef; and Rauch, Klausheinz, to Rheinmetall GmbH. Plastic mushroom head packing. 3,707,900, Cl. 89-26.000.

Horsley, Caperton B., to Braxton Corporation. Stimulator. 3,708,033, Cl. 181-.5mw.

Horton, Bernard S.: *See—*
Timmins, Robert S.; Horton, Bernard S.; and Goldsmith, Robert L., 3,707,770.

Hoshikawa, Makio: *See—*
Watanabe, Masao; Mizoguchi, Hidekazu; and Hoshikawa, Makio, 3,708,262.

Hoshina, Naomi; and Suzuki, Etsuji, to Tokyo Shibaura Electric Co., Ltd. Control system for correcting errors in the position of work article making a linear motion by means of a drive screw. 3,708,736, Cl. 318-632.000.

Houk, Charles R.: *See—*
Godley, Augustus P.; Fuller, Francis M.; Houk, Charles R.; Holland, Henry A. Nelson; and Gendron, George J., 3,707,847.

Houlihan, William J.: *See—*
Anderson, Paul L.; Houlihan, William J.; and Manning, Robert E., 3,708,484.

Howard, Jay W.: *See—*
Haddock, Alva H., Jr.; and Howard, Jay W., 3,708,775.

Howland, Leland L., to Thermo King Corporation. Diesel engine starting switch and circuit. 3,708,683, Cl. 290-37.000.

Hoy, Alton P. Mathematical card game. 3,708,169, Cl. 273-1.00r.

Hoyt, Michael T.: *See—*
Junker, Bernhard T.; Breeding, Terry G.; Hoyt, Michael T.; and Hedrick, Ross M., 3,708,566.

Hswe, Myint: *See—*
Wakefield, Robert Henry, Jr.; Cunningham, James Alan; and Hswe, Myint, 3,708,360.

Hubbard, Ruby C.: *See—*
Hubbard, Walter A., 3,708,415.

Hubbard, Walter A.; deceased (by Hubbard, Ruby C.; legal representative). Rapid action electrolytic cell. 3,708,415, Cl. 204-257.000.

Huber, Donald A.: *See—*
Birk, James R.; and Huber, Donald A., 3,708,270.

Huboi, Robert W.; Palmer, Osmond F.; and Rising, Bradley D., to Eastman Kodak Company. Apparatus and method of sensing radiation derived from different portions of information bearing media. 3,708,676, Cl. 250-219.00q.

Huch, Peter: *See—*
Ganzler, Wolfgang; Schroder, Gunter; and Huch, Peter, 3,708,444.

Hughes Aircraft Company: *See—*
Barhydt, Hamilton, 3,708,666.
Berwin, Ted W., 3,708,716.

Hughes, Kathryn. Flat spring for boots and shoes. 3,707,787, Cl. 36-2.50r.

Hulten, Richard E., to McCord Corporation, mesne. Door assembly. 3,708,179, Cl. 280-150.0ab.

Hulter, Heinrich, Jr., Firma: *See—*
Lindner, Gustav, 3,707,861.

Hunter, Robert Tweedy, Jr.: *See—*
Compa, Russell Edward; Fischer, Charles Frederick; Hunter, Robert Tweedy, Jr.; and Odioso, Raymond Camillus, 3,708,425.
Hurst, Gerald Covington; and Belasco, Alan, to Whiley, George M., Limited. Transfers. 3,708,320, Cl. 117-3.300.
Hurt, William S.: *See—*
Bayer, Horst O.; and Hurt, William S., 3,708,591.
Hynes, Fred B. Parallel ski trainer and leg conditioner. 3,708,163, Cl. 272-57.00b.
Hyowa Hakko Kogyo Company, Ltd.: *See—*
Nakayama, Kiyoshi; and Araki, Kazumi, 3,708,395.
Iacoviello, John G.: *See—*
Lindemann, Martin K.; and Iacoviello, John G., 3,708,388.
Ichikawa, Yataro; and Tokashiki, Michiyuki, to Teijin Limited. Process for the continuous purification of crude terephthalic acid. 3,708,532, Cl. 260-525.000.
Igarashi, Ryo: *See—*
Onda, Katsuhiro; Igarashi, Ryo; and Nakanuma, Sho, 3,708,787.
Iijima, Yoo: *See—*
Shimamura, Isao; Iijima, Yoo; and Iwano, Haruhiko, 3,708,299.
Ikawa, Kazuo: *See—*
Tashiro, Kenichi; Furuto, Yoshio; Shigihara, Takeji; Ikawa, Kazuo; and Okano, Yukimitsu, 3,708,675.
Illinois Tool Works, Inc.: *See—*
Pestka, John A., 3,708,145.
Imamura, Kennosuke: *See—*
Ando, Kazuhiko; Omino, Teiji; and Imamura, Kennosuke, 3,708,557.
Imhanda A/G: *See—*
Roquier-Vicat, Camille, 3,708,373.
Immethun, Peter A., to Ethyl Corporation. Sandwich panel construction. 3,708,385, Cl. 161-69.000.
Imperial Chemical Industries Limited: *See—*
Barlow, George Edward, 3,708,365.
Marshall, Clifford; and Kalinowski, Stanislaw, 3,708,260.
Imperial Tobacco Group Limited: *See—*
Davis, Alfred Charles, 3,707,975.
Improved Machinery Inc.: *See—*
Luthi, Oscar, 3,708,249.
Industrial Filter & Pump Mfg., Co.: *See—*
Schmidt, Henry, Jr., 3,708,072.
Industrie Pirelli S.p.A.: *See—*
Oriani, Agostoni, 3,707,865.
Institut Elektrodinamiki Akademii Nauk Ukrainskoi SSR: *See—*
Grinevich, Feodosy Borisovich; and Tsyganok, Vladimir Andreevich, 3,708,698.
Institut Gornogo dela Sibirskogo Otdelenia Akademii Nauk SSSR: *See—*
Nazarov, Nikolai Grigorievich; Chinakal, Nikolai Andreevich; Sudnishnikov, Boris Vasilievich; Kostylev, Alexandr Dmitrievich; Gurkov, Konstantin Stepanovich; and Tupitsyn, Konstantin Konstantinovich, 3,708,023.
Institute of Gas Technology: *See—*
Linden, Henry R., 3,708,269.
International Business Machines Corporation: *See—*
Cope, James R.; and Smith, Paul F., 3,708,136.
Dailey, Jack R.; and Surgent, John G., 3,708,788.
Frei, Armin Heinz; and Vettiger, Peter, 3,708,699.
Grundon, Forrest Robert; Masterson, Frank Harrison; Wagler, Robert John; and Wustrau, Fred Ernest, 3,707,944.
Gunn, John B., 3,708,742.
McCarthy, Justin H., Jr., 3,708,050.
Nassimbene, Ernie George, 3,708,748.
Sha, Richard T.; and Tang, Donald T., 3,708,766.
Yao, Ying Luh, 3,708,688.
International Harvester Company: *See—*
Sutton, Ralph L., 3,707,833.
International Nickel Company, Inc., The: *See—*
Burr, Derek James; and Betteridge, Walter, 3,708,282.
International Research & Development Company, Limited: *See—*
Tinlin, Frank, 3,708,705.
International Standard Electric Corporation: *See—*
Sterling, Henley Frank; and Bush, Eric Langley, 3,708,728.
International Telephone and Telegraph Corporation: *See—*
Malm, Marvin Forest; and McKinney, Joseph Charles, 3,708,792.
Internationella Siporex Aktiebolaget: *See—*
Goransson, Rolf Erik, 3,708,148.
Interstate Oil Transport Co.: *See—*
Frankel, Ernst G., 3,707,934.
Investors Inventures, Inc.: *See—*
Bucalo, Louis, 3,707,957.
Ionarc Smelters Ltd.: *See—*
Bainbridge, Robert, 3,708,409.
Iosue, Michael F.; and Lernould, Andre A., to Rogers Corporation. Laminated bus bar assembly. 3,708,609, Cl. 174-72.00b.
Iowa State University Research Foundation, Inc.: *See—*
Willett, Richard M., 3,708,746.
Ippolito, Anthony D.; and Van Arsdale, Howard, to N L Industries, Inc. Coating composition. 3,708,448, Cl. 260-24.000.
Ippolito, Anthony D.; and Van Arsdale, Howard, to N L Industries, Inc. Flux composition. 3,708,449, Cl. 260-24.000.
Irvine, Robert Leard. Catalyst transfer in a plural bed hydrogention process. 3,708,420, Cl. 208-156.000.
Isaka, Ichiro: *See—*
Murakami, Masuo; Isaka, Ichiro; Kawahara, Norio; Kashiwagi, Teruya; Shibanuma, Tadao; and Shiozaki, Tetsuya, 3,708,514.
Ishibashi, Masataka: *See—*
Akito, Eiichiro; Takagi, Toshitsugu; Soda, Yakio; and Ishibashi, Masataka, 3,708,594.
Ishida, Hiroshi; Isozaki, Isamu; and Mukai, Minoru, to Fuji Photo Film Co., Ltd. Bag supplying device. 3,707,824, Cl. 53-188.000.
Ishii, Shiro, to C R Parts, Ltd. Cash storage drawer with electrically actuated latch means. 3,708,773, Cl. 335-254.000.
Ishii, Yasuyoshi: *See—*
Akiyama, Yuji; Ishii, Yasuyoshi; Ozawa, Shigeo; and Takeshima, Saburo, 3,708,706.
Ishikawa, Hiromichi: *See—*
Okamoto, Hiromu; Ohi, Takuo; Tamura, Jyotaro; Takahashi, Saburo; Oyama, Hiroshi; Ueda, Hideo; Sasaki, Kunihiko; and Ishikawa, Hiromichi, 3,708,278.
Ishikawa, Shogo, to Kabushiki Kaisha Kito. Safety device in motor winch. 3,708,719, Cl. 317-13.00r.
Ishimoto, Sachio; Togawa, Haruo; Honda, Yuitsu; and Saiki, Noritsugu, to Teijin Limited. Process for the preparation of ω-hydroxy saturated aliphatic monocarboxylic acids of 4 to 12 carbon atoms. 3,708,534, Cl. 260-535.00r.
Isozaki, Isamu: *See—*
Ishida, Hiroshi; Isozaki, Isamu; and Mukai, Minoru, 3,707,824.
Ito, Shin, to Toyota Jidosha Kogyo Kabushiki Kaisha. Hydraulic control system for transmissions. 3,707,890, Cl. 74-868.000.
ITT Industries, Inc.: *See—*
Veith, Alois L., 3,707,766.
Ivers, Richard J., to Dynamics Research Corporation. Position and velocity sensor. 3,708,681, Cl. 250-231.00r.
Iwano, Haruhiko: *See—*
Shimamura, Isao; Iijima, Yoo; and Iwano, Haruhiko, 3,708,299.
Iwatsu Electric Company, Ltd.: *See—*
Matuoka, Hideo, 3,708,692.
Izawa, Shinich: *See—*
Nakanishi, Atsuo; Izawa, Shinich; and Toyama, Kunio, 3,708,455.
Jache, Otto. Process for preparing the negative electrodes for a dry-charged lead acid storage battery. 3,708,338, Cl. 136-27.000.
Jackson, Albert Edward; and Williams, Richard Fred, to British Steel Corporation. Method of producing a coated ferrous substrate. 3,708,322, Cl. 117-31.000.
Jaffe, Morris D., Jr. Illuminated display device. 3,707,790, Cl. 40-34.000.
Jakobi, Gunter; and Berth, Peter, to Henkel & Cie G.m.b.H. Washing and cleansing compositions. 3,708,427, Cl. 252-99.000.
James, Robert L.: *See—*
Curran, Peter F.; Tawfik, David A.; and James, Robert L., 3,708,791.
James, Steve Clifton: *See—*
Tomasino, Charles; and James, Steve Clifton, 3,708,327.
Jamieson, Robert S.: *See—*
Butler, Luther C., Jr.; and Jamieson, Robert S., 3,708,686.
Jania, Zbigniew J.; and Vanderberg, Lawrence J., to Ford Motor Company. Maximum vehicle speed limiter. 3,708,031, Cl. 180-110.000.
Janke, Donald E.: *See—*
Marcade, Roque D.; and Janke, Donald E., 3,708,721.
Niewyk, Anthony; and Janke, Donald E., 3,707,856.
Japan Gas-Chemical Company, Inc.: *See—*
Murayama, Masayuki; and Abe, Koichi, 3,708,524.
Japanese Geon Company, Ltd., The: *See—*
Karastu, Tetsuo; Sasaki, Hiroshi; and Fukuda, Hideo, 3,708,461.
Jasinski, Stanley C.: *See—*
Duffty, Bryan; Golob, Theodore B.; Jasinski, Stanley C.; and Zwart, Jack, 3,708,000.
Jasper Electronics Manufacturing Corporation, The: *See—*
Hebeisen, Richard; and Tevault, William, 3,708,604.
Javet, Alain Ferdinand, to Battelle Development Corporation, The. Separating apparatus. 3,708,067, Cl. 209-211.00.
Johnson, Arnold C., to Veeder Industries, Inc. TV channel indicator counter. 3,708,114, Cl. 235-103.000.
Johnson, George E.; and Rohleder, Penelope C., to General Mills, Inc. Cake mix. 3,708,309, Cl. 99-94.000.
Johnson, Hal C.: *See—*
Mitton, Robert E., 3,707,845.
Johnson, Harold, to California Data Corporation. Electric motor speed sensing. 3,708,737, Cl. 318-636.000.
Johnston, Donald E.: *See—*
Griffiths, William R.; Johnston, Donald E.; Yates, John S.; and Layer, Gerard E., 3,708,138.
Johnstone, Frank: *See—*
Smillie, George Horn; and Johnstone, Frank, 3,708,650.
Jonasch, Edward A.: *See—*
McNally, George P.; and Jonasch, Edward A., 3,707,835.
Jones, Clarence E.: *See—*
Carr, Robert D.; Collier, Harry T.; and Jones, Clarence E., 3,707,859.
Jones, Cyril W. Changing hand fishing reel. 3,708,137, Cl. 242-219.000.
Jones, Fred C.: *See—*
Muller, Charles B.; and Jones, Fred C., 3,707,832.
Jones, John F.: *See—*
Lubowitz, Hyman R.; Burns, Eugene A.; and Jones, John F., 3,708,370.
Jones, Marie: *See—*

Mitton, Robert E., 3,707,845.

Jones, Morris, 50% to Lloyd, David Dale. Trailer hitch. 3,708,183, Cl. 280-483.000.

Jones, Shirley M.: *See—*
Mitton, Robert E., 3,707,845.

Jones, Stanley W.: *See—*
Nye, William M.; and Jones, Stanley W., 3,708,633.

Joslyn, Wallace G.; and Keil, Joseph W., to Dow Corning Corporation. Process for making PVC foams. 3,708,441, Cl. 260-2.50p.

Jottier, Christian Francis, to L'Automation Chimique et Nucleaire and Commissariat a l'Energie Atomique. Automatic sample analyzer. 3,708,264, Cl. 23-230.00r.

Jullien-Davin, Jean, to Crouzet. Modular system for pneumatic control. 3,707,989, Cl. 137-608.000.

Junas, Thomas B.; and La Torre, Augustin, to General Latex and Chemical Corporation. Polymeric thickeners and method of preparing and using the same. 3,708,445, Cl. 260-4.00r.

Junker, Bernhard T.; Breeding, Terry G.; Hoyt, Michael T.; and Hedrick, Ross M., to Monsanto Company. Method for polymer casting from inlet reservoir. 3,708,566, Cl. 264-171.000.

Justice, Jack: *See—*
Justice, Marjorie T.; and Justice, Jack, 3,707,742.

Justice, Marjorie T.; and Justice, Jack. Device for holding objects in a handbag or the like. 3,707,742, Cl. 24-86.00b.

Kabushiki Kaisha Kito: *See—*
Ishikawa, Shogo, 3,708,719.

Kabushiki Kaisha Suwa Seikosha: *See—*
Miyasaka, Mamoru, 3,707,840.
Miyasaka, Mamoru, 3,707,841.

Kabushiki Kaisha Tokai Rika Denki Seisakusho: *See—*
Suzuki, Masaru, 3,708,032.

Kadison, Leon A.; and Maguire, Eileen, to Crown City Plating Co. Chromic acid conditioner for treatment of polymeric resin surfaces for electroless plating. 3,708,430, Cl. 252-188.000.

Kado, Masaru: *See—*
Yoshinaga, Eiichi; Takahashi, Yoshio; and Kado, Masaru, 3,708,573.

Kahabka, Richard D.: *See—*
Enright, Dennis J.; Kahabka, Richard D.; and Miller, Donald F., 3,708,779.

Kahabka, William P.: *See—*
Ray, Edward C.; and Kahabka, William P., 3,707,759.

Kalinowski, Stanislaw: *See—*
Marshall, Clifford; and Kalinowski, Stanislaw, 3,708,260.

Kalopissis, Gregoire; and Vanlerberghe, Guy, to Societe Anonyme dite: l'Oreal. Non-ionic surface-active agents derived from fatty chain diols and method of preparing same. 3,708,364, Cl. 252-156.000.

Kaltin, Berndt, to Aktiebolaget Svenska Flaktfabriken. Method of drying goods suspended in a gas stream. 3,707,775, Cl. 34-10.000.

Kalven, Alex E., to GAF Corporation. Vacuum belt conveyor. 3,708,058, Cl. 198-184.000.

Kamarauskas, Walter M. Golf stance device. 3,708,174, Cl. 273-187.00r.

Kamata, Yoshihiro, to Furukawa Electric Company Limited, The. Process for continuously producing nickel or nickel-gold coated wires. 3,708,405, Cl. 204-37.00r.

Kamenick, Rudolph J., to Goodrich, B. F., Company, The. Power transmission pulley and means for changing the diameter of same. 3,707,883, Cl. 74-230.160.

Kamiya, Takashi; and Hashimoto, Masashi, to Societe d'Etudes Scientifiques et Industrielles de l'Ile-de-France. 1-Substituted-2-nitromethylenepyrrolidines. 3,708,497, Cl. 260-326.800.

Kanegafuchi Boseki Kabushiki Kaisha: *See—*
Watanabe, Masao; Mizoguchi, Hidekazu; and Hoshikawa, Makio, 3,708,262.

Kano, Kunio: *See—*
Sugiura, Mamoru; Kano, Kunio; Kimura, Kazuaki; and Oono, Hiroyuki, 3,708,576.

Kantarian, Edward T.; Bearde, John N.; and Staub, Donald F., said Bearde assor. to. Sheet collating machine. 3,708,160, Cl. 270-53.000.

Kappler, Frank R.; and Cramer, John J., to BASF Wyandotte Corporation. Laundry size for polyester-cotton blends of fabric. 3,708,466, Cl. 260-17.45t.

Karastu, Tetsuo; Sasaki, Hiroshi; and Fukuda, Hideo, to Japanese Geon Company, Ltd., The. Process for the vulcanization of epihalohydrin. 3,708,461, Cl. 260-79.000.

Karchmar, Tsetsiliya Aronovna: *See—*
Stepanov, Gleb Alexandrovich; Chernyakov, Semen Semenovich; and Karchmar, Tsetsiliya Aronovna, 3,708,316.

Kardos, John Louis, to Monsanto Company, mesne. Polycondensate reinforcement process using an interfacial-forming technique. 3,708,456, Cl. 260-37.00n.

Karna, Carl G., to Lavin, R., & Sons, Inc. Method of making a cast anode with hook. 3,708,417, Cl. 204-286.000.

Kasakoff, Sam, 18% to Ebert, Michael. Processing of soybeans. 3,708,310, Cl. 99-98.000.

Kashiwagi, Teruya: *See—*
Murakami, Masuo; Isaka, Ichiro; Kawahara, Norio; Kashiwagi, Teruya; Shibanuma, Tadao; and Shiozaki, Tetsuya, 3,708,514.

Kasper, Andrew A.; and Lifland, Leonard, to Kendall Company, The. Compounds having methylol groups and unsaturated groups are used with selected catalysts to produce a durable press product. 3,708,261, Cl. 8-116.300.

Katakura, Shiro; and Nishida, Yutaka, to Tokico, Ltd. Price indication apparatus in which unit price setting is changeable from outside. 3,708,113, Cl. 235-61.00m.

Kato, Toshio: *See—*
Senoo, Saburo; Kato, Toshio; and Kimura, Hiroshi, 3,708,519.

Katsuragawa Denki Kabushiki Kaisha: *See—*
Kinoshita, Koichi; and Kawamura, Takao, 3,708,291.

Katz, Ira R., to Hartmann Luggage Company. Luggage bags. 3,708,045, Cl. 190-41.00z.

Kawada, Takehiko, to Denki Onkyo Company, Ltd. Apparatus for driving piezoelectric transformers. 3,708,701, Cl. 310-8.100.

Kawahara, Norio: *See—*
Murakami, Masuo; Isaka, Ichiro; Kawahara, Norio; Kashiwagi, Teruya; Shibanuma, Tadao; and Shiozaki, Tetsuya, 3,708,514.

Kawamura, Masaharu: *See—*
Horimoto, Kohei; Kawamura, Masaharu; Norota, Susumu; and Okui, Mitsuhiko, 3,708,561.

Kawamura, Takao: *See—*
Kinoshita, Koichi; and Kawamura, Takao, 3,708,291.

Keagle, Charles; Waggoner, Alan; and Phillips, Peter. Electronic sound synthesizer. 3,708,603, Cl. 84-1.110.

Kehr, Clifton L.; and Wszolek, Walter R., to Grace, W. R., & Co. High energy curable liquid polyene-polythiol polymer composition. 3,708,413, Cl. 204-159.140.

Keil, Joseph W.: *See—*
Joslyn, Wallace G.; and Keil, Joseph W., 3,708,441.

Kelco Company: *See—*
Pettitt, David J., 3,708,446.

Kellert, Paul H. Cement spray gun. 3,708,124, Cl. 239-426.000.

Kelling, Leroy U.C., to General Electric Company. Numerical conversion apparatus for interferometer position transducer. 3,708,657, Cl. 235-156.000.

Kelsey-Hayes Company: *See—*
Hollnagel, Harold S., 3,708,040.
Riordan, Hugh E.; Every, Peter; and Hill, Frank E., 3,708,214.

Kendall Company, The: *See—*
Kasper, Andrew A.; and Lifland, Leonard, 3,708,261.
Patience, Donald; and Collins, Robert F., 3,707,964.
Villari, Frank K.; and Patel, Bhupendra C., 3,707,972.

Kennecott Copper Corporation: *See—*
Frankovich, George J., 3,707,764.

Kennedy, Alexander W.; and Malkin, Irving, to Diamond Shamrock Corporation. Coated metal and method. 3,708,350, Cl. 148-6.200.

Keropian, Michael. Articulated hand brace. 3,707,963, Cl. 128-77.000.

Kersten, Hilde; Heinrichs, Gunter; Meyer, Gerhard; and Laudien, Dieter. Process for preparing 1,3-disubstituted symmetrical thioureas. 3,708,496, Cl. 260-309.700.

Kerzman, Jack A. Wad assembly for shotgun shell. 3,707,915, Cl. 102-42.00c.

Kessler, Fritz: *See—*
Engelsmann, Dieter; Kessler, Fritz; Mass, Dieter; and Zattler, Kurt, 3,707,904.

Keur, Robert I., to Dick, A. B., Company. Filtering apparatus for a drop writing system. 3,708,118, Cl. 239-1.000.

Kharkovsky Aviatsionny Institut: *See—*
Kononenko, Vadim Grigorievich; Yatsenko, Vasilievich; Komnatny, Igor Pavlovich; Schenkochikhin, Serafim Vasilievich; Stelmakh, Viktor Alexeevich; Mazichenko, Stanislav Anisimovich; and Kudryavtsev, Valentin Semenovich, 3,707,896.

Kiddy, Sandra Jean: *See—*
Peetoom, Frans; and Kiddy, Sandra Jean, 3,708,572.

Kimberly-Clark Corporation: *See—*
Donnelly, Harold F., 3,708,366.
Krake, Kenneth V., 3,708,390.
Stumpf, Robert J., 3,708,361.
Thomas, Gordon D.; and Gresham, James T., 3,708,383.

Kimmel, Robert Michael: *See—*
Chenevey, Edward Clarence; and Kimmel, Robert Michael, 3,708,326.

Kimura, Hiroshi: *See—*
Senoo, Saburo; Kato, Toshio; and Kimura, Hiroshi, 3,708,519.

Kimura, Kazuaki: *See—*
Sugiura, Mamoru; Kano, Kunio; Kimura, Kazuaki; and Oono, Hiroyuki, 3,708,576.

Kimura, Masamichi, to Matsushita Electronics Corporation. Electrostatic deflection type cathode-ray tube with a plurality of electron guns. 3,708,714, Cl. 315-13.00c.

King, Calvin J., to Perfex Corporation. Tire cooling device and method of cooling. 3,708,006, Cl. 152-153.000.

King, Samuel F., to Mobil Oil Corporation. Hot oil leak detection. 3,708,245, Cl. 417-13.000.

Kinoshita, Kazuhisa: *See—*
Mimino, Tohru; Kinoshita, Kazuhisa; and Hattori, Keisuke, 3,708,280.

Kinoshita, Koichi; and Kawamura, Takao, to Katsuragawa Denki Kabushiki Kaisha. Photosensitive elements for use in electrophotography and method of manufacturing same. 3,708,291, Cl. 96-1.500.

Kirchmayr, Rudolf, to Ciba-Geigy Corporation. Process for the production of chlorine-containing V-triazole compounds. 3,708,475, Cl. 260-240.00c.

Kirk, Bradley S.: *See—*
Shattes, Walter J.; Marancik, William G.; and Kirk, Bradley S., 3,708,606.

Kirwin, James M.: *See—*

Haase, Elmer A.; and Kirwin, James M., 3,707,985.

Kishida, Tohru; Arikawa, Tadashi; Matsuyama, Shigeru; and Fukushige, Shinobu, to Sumitomo Metal Industries, Ltd. and Aikoh Co., Ltd. Agent for adding to a mould in which molten ferritic stainless steel is cast by a continuous casting process. 3,708,314, Cl 106-38.270.

Kishimoto, Hiroshi: *See—*
Yamahara, Takeshi; Kishimoto, Hiroshi; Nakamura, Shinji; Deguchi, Takashi; and Takamatsu, Shichiro, 3,708,548.

Kissane, Richard W., to Speed Fastener, Inc. Alignment jig for electric screw driver or the like. 3,708,238, Cl. 408-112.000.

Kistner, George E. Adhesive bandage and apparatus for manufacture of same. 3,708,375, Cl. 156-552.000.

Kitajima, Susumu, to Kurita Machinery Manufacturing Company, Limited. Power control apparatus. 3,707,889, Cl. 74-845.000.

Kitrilakis, Sotiris; and Robinson, Thomas Charles, to Tecna Corporation. Steady flow regenerative peritoneal dialysis system and method. 3,707,967, Cl. 128-213.000.

Kittleman, Edmund T.; and Zuech, Ernest A., to Phillips Petroleum Company. Olefin conversion using rare earth metal halides with organoaluminums. 3,708,551, Cl. 260-683.00d.

Klass, Georg, to Motoren- und Turbinen-Union Munchen GmbH. Method for manufacturing a turbine blade. 3,707,750, Cl. 29-156.80b.

Klebba, Horst; and Maneck, Ernst, to Volkswagenwerk Aktiengesellschaft. Sliding door arrangement for motor vehicles. 3,708,192, Cl. 292-261.000.

Kleemann, Axel; Kruger, Manfred; Schreyer, Gerd; Weiberg, Otto; and Weigert, Wolfgang, to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler. Process for the epoxidation of unsaturated compounds. 3,708,507, Cl. 260-348.501.

Kleemann, Manfred: *See—*
Kutter, Eberhard; Griss, Gerhart; Grell, Wolfgang; and Kleemann, Manfred, 3,708,486.

Klein, Joseph F. M.: *See—*
Thomas, Jozef A.; Klein, Joseph F. M.; and Geurts, Leonardus H., 3,708,515.

Klein, Louis: *See—*
Schreckenberg, Karl; Klein, Louis; and Read, Lorenzo Antonio, 3,708,771.

Kleinneiur, Jay H.: *See—*
Brode, Eugene G.; and Kleinneiur, Jay H., 3,708,607.

Klug, Joseph R.: *See—*
Yindra, Leonard J.; and Klug, Joseph R., 3,707,930.

Knebel, Andrew W. Compression release mechanism for two stroke engines used to brake a vehicle. 3,707,952, Cl. 123-97.00b.

Kny, Gunter; and Westphal, Otto, to Boehringer Ingelheim G.m.b.H. Monocholine ester of 3-octadecyloxy-propanol-(1)-phosphoric acid. 3,708,558, Cl. 260-945.000.

Kobayashi, Tsuneo: *See—*
Morita, Ken-Ichi; and Kobayashi, Tsuneo, 3,708,516.

Kocourek, Franz: *See—*
Geyken, Erwin; Krauss, Siegfried; Kocourek, Franz; Koninger, Horst; and Schwarzmaier, Gerhard, 3,707,777.

Koehring Company: *See—*
Mistarz, Robert J.; and Mojonnier, Albert B., Sr., 3,708,376.

Koenig, Elmer A., to Sherwood Medical Industries Inc. Arming cap for breech loaded syringe. 3,707,968, Cl. 128-218.0pa.

Koenig, Karl-Heinz: *See—*
Rohr, Wolfgang; Koenig, Karl-Heinz; and Fischer, Adolf, 3,708,471.

Koether, Karl H.; and Dillin, Arthur J., to Wilson, H. W., Company. Apparatus for separating bound books. 3,708,094, Cl. 225-103.000.

Koger, Terrell B.; and Terry, Lewis E. Self-aligning electroplating mask. 3,708,403, Cl. 204-15.000.

Kohfeld, Werner: *See—*
Viol, Gunter; and Kohfeld, Werner, 3,708,009.

Kohler, Thomas P.; Smith, Marvin W.; and Van Marter, Charles W., to General Electric Company. Regulated electrical inverter system. 3,708,739, Cl. 321-21.000.

Koller, James Edward: *See—*
Plakunov, James; and Koller, James Edward, 3,708,302.

Kolomeir, Frank Nathan. Marking instrument. 3,708,235, Cl. 401-57.000.

Komnatny, Igor Pavlovich: *See—*
Kononenko, Vadim Grigorievich; Yatsenko, Vasilievich; Komnatny, Igor Pavlovich; Schenkochikhin, Serafim Vasilievich; Stelmakh, Viktor Alexeevich; Mazichenko, Stanislav Anisimovich; and Kudryavtsev, Valentin Semenovich, 3,707,896.

Kondo, Motoya, to Tokyo Shibaura Electric, Co. All-channel tuner. 3,707,877, Cl. 74-10.520.

Koninger, Horst: *See—*
Geyken, Erwin; Krauss, Siegfried; Kocourek, Franz; Koninger, Horst; and Schwarzmaier, Gerhard, 3,707,777.

Koninklijke Nederlandsche Hoogovens en Staalfabrieken, N.V.: *See—*
Owen, Arthur John; Visser, Reier; and Van Laar, Jacobus, 3,708,317.

Kononenko, Vadim Grigorievich; Yatsenko, Vasilievich; Komnatny, Igor Pavlovich; Schenkochikhin, Serafim Vasilievich; Stelmakh, Viktor Alexeevich; Mazichenko, Stanislav Anisimovich; and Kudryavtsev, Valentin Semenovich, to Kharkovsky Aviatsionny Institut. Mchine for working metals by impulses. 3,707,896, Cl. 83-639.000.

Kopp, Eugen, to Werner & Pfleiderer. Extrusion press. 3,708,256, Cl. 425-376.000.

Koppe, Herbert: *See—*
Stahle, Helmut; Koppe, Herbert; Kummer, Werner; and Wick, Helmut, 3,708,485.

Koppers Company, Inc.: *See—*
Holter, Samuel N., 3,708,509.

Korenicki, William John: *See—*
Masson, Narinder; Korenicki, William John; and Lechner, Walter Ludwig, 3,707,872.

Korolev, Evgeny Mikhailovich; Shel, Marat Moiseevich; and Likuchev, Vladimir Grigorievich. Method of increasing strength of vessels, particularly high-pressure vessels. 3,708,644, Cl. 219-7.500.

Korry Manufacturing Company: *See—*
Fuller, Maurice D., 3,708,640.

Koskinen, Rauno Veikko. Barking drum. 3,708,001, Cl. 144-208.00b.

Kostylev, Alexandr Dmitrievich: *See—*
Nazarov, Nikolai Grigorievich; Chinakal, Nikolai Andreevich; Sudnishnikov, Boris Vasilievich; Kostylev, Alexandr Dmitrievich; Gurkov, Konstantin Stepanovich; and Tupitsyn, Konstantin Konstantinovich, 3,708,023.

Kosubek, Uwe: *See—*
Lowenfeld, Rudolf; and Kosubek, Uwe, 3,708,257.

Kotal, John R.: *See—*
Stock, Michael J.; and Kotal, John R., 3,708,679.

Kottsieper, Edward. Impact softening device for automobiles. 3,708,195, Cl. 293-72.000.

Kovac, Steve. Envelopes. 3,708,105, Cl. 229-75.000.

Kowalski, Horst: *See—*
Buchfuhrer, Gerhard; Dudszus, Alfred; Milles, Wilhelm; Lerche, Franz; Feyer, Gunter; Krause, Manfred; Grunwald, Josef; Hensel, Ulrich; Aust, Ingo; Ewald, Gunter; Langer, Walter; Ludke, Gunther; Mohle, Karl-Georg; Oberlander, Joachim; Kowalski, Horst; Gatzk, Eckard; Pernaux, Gerd; Schwank, Otto; Leschnewski, Konrad; Brose, Reinhard; Hartwig, Gunter; and Ploetz, Ulrich, 3,708,100.

Koyanagi, Shunichi; Ogawa, Kinya; Sekigawa, Fujio; Suzuki, Hiroshi; and Ono, Shigeru, to Shinetsu Chemical Company. Photopolymerizable compositions comprising cellulose derivative. 3,708,305, Cl. 96-115.00p.

Kozak, Philip E., to Union Carbide Corporation. Electrode joint having undercut electrode sockets. 3,708,601, Cl. 13-18.000.

Kozakai, Asao: *See—*
Torri, Tatsumi; Kozakai, Asao; Yamamoto, Takekazu; and Nyunoya, Mizuo, 3,708,044.

Kozel, Charles A.; Baraglia, Nathan A.; and Wright, George C., to Methode Manufacturing Corporation. Non-delaminating bus assembly for electronic systems and method of forming same. 3,708,610, Cl. 174-72.00b.

Kraftco Corporation: *See—*
Miller, Roland E.; and Neill, David M., 3,708,055.

Krake, Kenneth V., to Kimberly-Clark Corporation. Suction box for a papermaking machine having multiple compartments formed by J-shaped elements. 3,708,390, Cl. 162-374.000.

Krakow, Burton; Dolin, Stanley A.; and Kruegle, Herman A., to Optical Coating Laboratory, Inc., mesne. Spectral analysis instrument with programmed spectral slit width. 3,708,227, Cl. 356-83.000.

Kranz, Rolf-Dieter, to Aktiengesellschaft Brown, Boveri & Cie. Frame and core-type dynamo-electric machine. 3,708,707, Cl. 310-258.000.

Krapcho, John: *See—*
Simon, Pierre; Bernstein, Jack; and Krapcho, John, 3,708,586.

Kratzer, Otto; Suter, Hubert; and Wirth, Friedrich, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Manufacture of naphthalene-1, 8-dioic anhydride. 3,708,504, Cl. 260-345.200.

Krause, Manfred: *See—*
Buchfuhrer, Gerhard; Dudszus, Alfred; Milles, Wilhelm; Lerche, Franz; Feyer, Gunter; Krause, Manfred; Grunwald, Josef; Hensel, Ulrich; Aust, Ingo; Ewald, Gunter; Langer, Walter; Ludke, Gunther; Mohle, Karl-Georg; Oberlander, Joachim; Kowalski, Horst; Gatzk, Eckard; Pernaux, Gerd; Schwank, Otto; Leschnewski, Konrad; Brose, Reinhard; Hartwig, Gunter; and Ploetz, Ulrich, 3,708,100.

Krause, Walter J.; and Stout, Gilbert T., to Bendix Corporation, The. Carbon core segmented friction disc. 3,708,042, Cl. 188-73.200.

Krause, Wilhelm, to Thermal Transfer Corporation. High temperature apparatus. 3,708,599, Cl. 13-1.000.

Krauss, Siegfried: *See—*
Geyken, Erwin; Krauss, Siegfried; Kocourek, Franz; Koninger, Horst; and Schwarzmaier, Gerhard, 3,707,777.

Kreda, Eugene J., to Servo Corporation of America, mesne. Variable threshold circuit. 3,708,678, Cl. 250-219.00d.

Krell, Karl-Heinz: *See—*
Von Der Eltz, Hans-Ulrich; Gunther, Dieter; Krell, Karl-Heinz; Matterstock, Karl; and Vollmann, Hansjorg, 3,708,258.

Kressley, Leonard J.: *See—*
Frevel, Ludo K.; and Kressley, Leonard J., 3,708,526.

Krueger, Harvey R.; and Reynolds, Donald S.; deceased (by Durkin, John T.; executor; and First National Bank of Chicago, The; executor). Float actuated sequence switch with pushbutton actuator. 3,708,637, Cl. 200-67.00b.

Krueger, Wallace F. Plural fluid mixing and spray apparatus. 3,708,123, Cl. 239-415.000.

Kruegle, Herman A.: *See—*
Krakow, Burton; Dolin, Stanley A.; and Kruegle, Herman A., 3,708,227.

Kruger, Manfred: *See—*

Kleemann, Axel; Kruger, Manfred; Schreyer, Gerd; Weiberg, Otto; and Weigert, Wolfgang, 3,708,507.

Kruse, Stanley L. Doweling jig. 3,708,237, Cl. 408-108.000.

Kudryavtsev, Valentin Semenovich: *See—*
Kononenko, Vadim Grigorievich; Yatsenko, Vasilievich; Komnatny, Igor Pavlovich; Schenkochikhin, Serafim Vasilievich; Stelmakh, Viktor Alexeevich; Mazichenko, Stanislav Anisimovich; and Kudryavtsev, Valentin Semenovich, 3,707,896.

Kuhn, Wolfgang H.: *See—*
Binder, Horst; Kuhn, Wolfgang H.; Lindner, Werner; and Sandstede, Gerd, 3,708,342.

Kuhne, Norbert: *See—*
Dorschner, Oskar; Carduck, Franz Josef; and Kuhne, Norbert, 3,707,838.

Kuhnle, Willi; and Frei, Walter, to Zahnradfabrik Friedrichshafen Aktiengesellschaft. Electro-hydraulic selector for the control of multiple loads. 3,708,047, Cl. 192-12.00c.

Kumano, Hiroshi: *See—*
Nishino, Atsushi; Kumano, Hiroshi; Noguchi, Yoshinori; Sonetaka, Kazunori; and Amano, Yasuji, 3,708,408.

Kumiai Chemical Industry Co., Ltd.: *See—*
Yoshinaga, Eiichi; Takahashi, Yoshio; and Kado, Masaru, 3,708,573.

Kummer, Werner: *See—*
Stahle, Helmut; Koppe, Herbert; Kummer, Werner; and Wick, Helmut, 3,708,485.

Kunii, Daizo; and Kunugi, Taiseki, to Toyo Soda Manufacturing Co., Ltd. Process and apparatus for thermal cracking of hydrocarbons. 3,708,552, Cl. 260-683.00r.

Kunik, I. Jordan; and Sitomer, Alvin L., 50% to said Kunik and 50% to said Sitomer, Alvin L. Board game apparatus. 3,708,171, Cl. 273-130.00r.

Kunishige, Hidenori; and Uchida, Kosaku, to Matsushita Electric Industrial Co., Ltd. Channel indicating means for television receivers. 3,707,941, Cl. 116-124.400.

Kunugi, Taiseki: *See—*
Kunii, Daizo; and Kunugi, Taiseki, 3,708,552.

Kurita Machinery Manufacturing Company, Limited: *See—*
Kitajima, Susumu, 3,707,889.

Kuroda, Takashi; and Tatsutomi, Yasuo, to Toyo Kogyo Co., Ltd. Transmission controlled throttle for internal combustion engine. 3,707,892, Cl. 74-873.000.

Kurokawa, Toshio; Nishiyama, Shoji; Okubo, Toshio; and Naga, Katsumi, to Turokawa, Toshio, Nishiyama, Shoji and Tokyo Shibaura Electric Co., Ltd. X-ray photographing apparatus. 3,708,662, Cl. 250-55.000.

Kurtz, Robert G.; and Van Vorous, Theodore, to Dow Chemical Company, The. Process for metal coating boron nitride objects. 3,708,325, Cl. 117-61.000.

Kurumada, Tomoyuki: *See—*
Murayama, Keisuke; Morimura, Syoji; Higashida, Susumu; Matsui, Katsuaki; Kurumada, Tomoyuki; and Onta, Noriyuki, 3,708,488.

Kutik, Louis F.: *See—*
Gronemeyer, Erich W.; and Kutik, Louis F., 3,708,083.

Kutter, Eberhard; Griss, Gerhart; Grell, Wolfgang; and Kleemann, Manfred, to Boehringer Ingelheim G.m.b.H. 2-[p-(N'-cycloalkylcarbamido-N-sulfonyl) -phenethyl]-1,2,3,4-tetrahydro-1,3-dioxo-4,4 -dimethyl-isoquinolines and alkali metal salts. 3,708,486, Cl.260-281.000.

Kvam, Donald C.: *See—*
Harrington, Joseph K.; Kvam, Donald C.; Mendel, Arthur; and Robertson, Jerry E., 3,708,491.

Kyowa Hakko Kogyo Co., Ltd.: *See—*
Nakayama, Kiyoshi, 3,708,394.

La Branche, Harvey W., to Mattel, Inc. Method of constructing a toy vehicle. 3,707,761, Cl. 29-446.000.

La Torre, Augustin: *See—*
Junas, Thomas B.; and La Torre, Augustin, 3,708,445.

LaBelle, Laurence Treffle, to Miner Enterprises, Inc. Wedge lock device. 3,708,075, Cl. 213-22.000.

Labussiere, Andre Julien: *See—*
Duthion, Louis; Cabassut, Andre Emile Roger; and Labussiere, Andre Julien, 3,708,036.

Lace, Melvin A., to Motorola, Inc. Power driven platen for tape cartridges. 3,708,135, Cl. 242-55.19a.

Laing, Graham Stirling: *See—*
Vantill, Martinus Pieter Richard; Laing, Graham Stirling; and Lounsbury, Donald Mack, 3,708,634.

Lambert Brake Corporation, mesne: *See—*
Hahn, Emil H., 3,708,041.

Lamberton, Bruce A. Means for encasing rigid members with concrete. 3,708,146, Cl. 249-1.000.

Lamkemeyer, Klaus, to Mertens & Co. Kommanditgesellschaft. Bicycle saddle. 3,708,201, Cl. 297-214.000.

Land Bros. Inc.: *See—*
Contreras, Manuel H.; and Land Bros. Inc., 3,708,372.

Land, Karl M., to Cities Service Oil Company. Explosive stimulation well completions. 3,707,914, Cl. 102-20.000.

Lang, Georges F., to Centre de Recherches de Pont-a-Mousson. Method and device for winding reinforcing threads for producing tubular bodies of reinforced synthetic resin. 3,708,132, Cl. 242-7.230.

Langenstein & Schemann Aktiengesellschaft: *See—*
Brauer, Willi, 3,707,866.

Langer, Walter: *See—*
Buchfuhrer, Gerhard; Dudszus, Alfred; Milles, Wilhelm; Lerche, Franz; Feyer, Gunter; Krause, Manfred; Grunwald, Josef; Hensel, Ulrich; Aust, Ingo; Ewald, Gunter; Langer, Walter; Ludke, Gunther; Mohle, Karl-Georg; Oberlander, Joachim; Kowalski, Horst; Gatzk, Eckard; Pernaux, Gerd; Schwank, Otto; Leschnewski, Konrad; Brose, Reinhard; Hartwig, Gunter; and Ploetz, Ulrich, 3,708,100.

Langner, Gerhard: *See—*
Bruneau, Henri; Langner, Gerhard; and Tournere, Marcel Joseph, 3,708,242.

Lanier Electronic Laboratory, Inc., mesne: *See—*
Nye, William M.; and Jones, Stanley W., 3,708,633.

Lardon, Marcel A.: *See—*
Brach, Paul J.; and Lardon, Marcel A., 3,708,293.

Lattin, William W., to Motorola, Inc. Voltage level translating circuit. 3,708,689, Cl. 307-205.000.

Laube, Max, to Swiss Aluminium Ltd. Method of and means for removing exhaust gases from an open furnace vessel. 3,708,414, Cl. 204-247.000.

Laudien, Dieter: *See—*
Kersten, Hilde; Heinrichs, Gunter; Meyer, Gerhard; and Laudien, Dieter, 3,708,496.

Lauffer, Fred E., to Owens-Illinois, Inc. Pallet. 3,707,929, Cl. 108-51.000.

Lauria, Francesco; Vecchietti, Vittorio; and Logemann, Willy, to Carlo Erba S.p.A. 4-Morpholinoethoxy-benzophenones. 3,708,482, Cl. 260-247.70c.

Lauricella, Robert. Progressive-tightening spindle chuck for milling machines or other machine tools. 3,708,178, Cl. 279-81.000.

L'Automation Chimique et Nucleaire: *See—*
Jottier, Christian Francis, 3,708,264.

Lavin, R., & Sons, Inc.: *See—*
Karna, Carl G., 3,708,417.

Layer, Gerard E.: *See—*
Griffiths, William R.; Johnston, Donald E.; Yates, John S.; and Layer, Gerard E., 3,708,138.

Laylander, Paul V.: *See—*
Connell, Joseph A.; Baranyi, Anthony J.; and Laylander, Paul V., 3,707,850.

Le Doux, Reynold A., Jr.: *See—*
Golliher, Waldo R.; Harris, Robert L.; and Le Doux, Reynold A., Jr., 3,708,568.

Le Franc, Guy J., to Siemens Aktiengesellschaft. Magnetic lens arrangement. 3,708,772, Cl. 335-210.000.

Le Suer, William Monroe, to Lubrizol Corporation, The. Reaction products of high molecular weight carboxylic acid esters and certain carboxylic acid acylating reactants. 3,708,522, Cl. 260-485.00g.

Leandri, Raymond. Construction block assembly. 3,707,820, Cl. 52-436.000.

Lear Siegler, Inc.: *See—*
Sadler, Harry J.; Pareja, Ramon; and Leschisin, John, 3,707,981.

Leblond, Christian Georges; and Oger, Jacques Francois Marie, to Centre de Recherches de Pont-a-Mousson Maidieres. Linings or casings for tunnels, galleries, mine pits and the like. 3,707,846, Cl. 61-45.00r.

Lechner, Walter Ludwig: *See—*
Masson, Narinder; Korenicki, William John; and Lechner, Walter Ludwig, 3,707,872.

Lee, Willis L. Pulsed-energy detonation system for electro explosive devices. 3,707,913, Cl. 102-18.000.

Leedy, Robert. Method for installing aluminum siding. 3,707,821, Cl. 52-748.000.

Leesona Corporation: *See—*
Stoppard, William E., 3,708,134.

Lehmann, Calude: *See—*
Dietrich, Henri; and Lehmann, Calude, 3,708,494.

Lehmann, Claude: *See—*
Dietrich, Henri; and Lehmann, Claude, 3,708,493.

Leitnaker, James M.; and Spear, Karl E., II, to United States of America, Atomic Energy Commission. Stabilized uranium or uranium-plutonium nitride fuel. 3,708,433, Cl. 252-301.10r.

Leland, Claude H., to Super Steel Treating Co. Heat treat furnace. 3,708,156, Cl. 263-41.000.

Lemelson, Jerome H. Extrusion apparatus. 3,708,253, Cl. 425-155.000.

Lerche, Franz: *See—*
Buchfuhrer, Gerhard; Dudszus, Alfred; Milles, Wilhelm; Lerche, Franz; Feyer, Gunter; Krause, Manfred; Grunwald, Josef; Hensel, Ulrich; Aust, Ingo; Ewald, Gunter; Langer, Walter; Ludke, Gunther; Mohle, Karl-Georg; Oberlander, Joachim; Kowalski, Horst; Gatzk, Eckard; Pernaux, Gerd; Schwank, Otto; Leschnewski, Konrad; Brose, Reinhard; Hartwig, Gunter; and Ploetz, Ulrich, 3,708,100.

Leri, Mario. Line marking apparatus. 3,707,942, Cl. 118-1.000.

Lernould, Andre A.: *See—*
Iosue, Michael F.; and Lernould, Andre A., 3,708,609.

Leschisin, John: *See—*
Sadler, Harry J.; Pareja, Ramon; and Leschisin, John, 3,707,981.

Leschnewski, Konrad: *See—*
Buchfuhrer, Gerhard; Dudszus, Alfred; Milles, Wilhelm; Lerche, Franz; Feyer, Gunter; Krause, Manfred; Grunwald, Josef; Hensel, Ulrich; Aust, Ingo; Ewald, Gunter; Langer, Walter; Ludke, Gunther; Mohle, Karl-Georg; Oberlander, Joachim; Kowalski,

Horst; Gatzk, Eckard; Pernaux, Gerd; Schwank, Otto; Leschnewski, Konrad; Brose, Reinhard; Hartwig, Gunter; and Ploetz, Ulrich, 3,708,100.

Lesher, Elroy W., to Albany International Corporation, mesne. Apparatus for metering liquid flow discharge. 3,708,088, Cl. 222-70.000.

Lesueur, Gilbert, to Alsthom-Savoisienne. Optical current transformer. 3,708,747, Cl. 324-96.000.

Lever Brothers Company: *See—*
Bolton, Andrew; Philpott, Peter John; and Scoats, Horace William, 3,708,311.
Hall, Philip George, 3,708,429.

Levine, Wilbur J.: *See—*
Hildenbrand, Walter W.; Levine, Wilbur J.; Manning, Stanley A.; and Stroms, Karl F., 3,708,798.

Levitt, Harold H.: *See—*
Weingarden, Marshall; and Levitt, Harold H., 3,708,061.

Levy, Leon M., to Condecor, Inc. Easel back having integral supporting structure. 3,707,791, Cl. 40-124.100.

Levy, Newton, Jr., to Grace, W. R., & Co. Process for the preparation of lead containing piezoelectric powders. 3,708,438, Cl. 252-62.900.

Lewis, John B.; and Hendick, Glen W., to United States of America, Agriculture. Elastomeric polyester-derived polyurethanes containing 12-hydroxymethyl-tetrahydroabietanol. 3,708,450, Cl. 260-26.000.

Lewis, Roy F.: *See—*
Starr, Arthur T.; Sewell, Brian C.; and Lewis, Roy F., 3,708,751.

Leydon, Arthur J.; Brenner, Mannie; and Chase, Fred L., to Chase, W. R., & Co. Composition for sealing contained sterilized foods. 3,708,331, Cl. 117-95.000.

Libbey-Owens-Ford Company: *See—*
Alexander, Harold M.; Mattimoe, Paul T.; and Hofmann, John J., 3,708,386.

Libby, Charles C.: *See—*
McMaster, Robert C.; and Libby, Charles C., 3,708,745.

Licentia, Patent-Verwaltungs-G.m.b.H.: *See—*
Moser, Helmut, 3,708,700.

Lifland, Leonard: *See—*
Kasper, Andrew A.; and Lifland, Leonard, 3,708,261.

Likuchev, Vladimir Grigorievich: *See—*
Korolev, Evgeny Mikhailovich; Shel, Marat Moiseevich; and Likuchev, Vladimir Grigorievich, 3,708,644.

Liles, Harry. Anti-pollution ballast container. 3,707,937, Cl. 114-741.00r.

Lilly, Eli, and Company: *See—*
Webber, J. Alan; and Van Heyningen, Earle M., 3,708,480.

Limpinsel, Gunter; and Fricker, Karl, to Lindemann Maschinenfabrik Gesellschaft mit beschrankter Haftung and Schweizerische Aluminium AG. Apparatus for salvaging carbon from anodes. 3,708,128, Cl. 241-101.00r.

Lin, Luke C., to Xerox Corporation. Image transfer process. 3,708,288, Cl. 96-1.400.

Lindberg, William S.: *See—*
Barecki, Chester J.; and Lindberg, William S., 3,708,202.

Lindblom, Frank W., to Textron, Inc. Ventilated goggles. 3,708,224, Cl. 351-62.000.

Linde Aktiengesellschaft Zentrale Patentabteilung: *See—*
Becker, Rudolf, 3,707,849.

Lindemann, Martin K.; and Iacoviello, John G., to Air Products and Chemicals, Inc. Process of laminating using vinyl acetate-ethylene copolymer latex adhesive composition. 3,708,388, Cl. 161-247.000.

Lindemann Maschinenfabrik Gesellschaft mit beschrankter Haftung: *See—*
Limpinsel, Gunter; and Fricker, Karl, 3,708,128.

Linden, Henry R., to Institute of Gas Technology. Fossil fuel hydrogasification process for production of synthetic pipeline gas. 3,708,269, Cl. 48-215.000.

Lindner, Gustav, to Hulter, Heinrich, Jr., Firma. Permutation lock, for example, for suitcases, briefcases or the like. 3,707,861, Cl. 70-74.000.

Lindner, Heinz; and Roscher, Georg. Device for producing double-sided looped cloth upon crochet galloon machines. 3,707,853, Cl. 66-84.000.

Lindner, Werner: *See—*
Binder, Horst; Kuhn, Wolfgang H.; Lindner, Werner; and Sandstede, Gerd, 3,708,342.

Lippi, Dominic M. Adjustable mounting bracket for fowl cage mounted watering cups. 3,707,949, Cl. 119-18.000.

Livingston, Richard W.: *See—*
Rocha, John G.; and Livingston, Richard W., 3,707,794.

Lloyd, Anthony Michael: *See—*
Alexander, David George; Lloyd, Anthony Michael; Greensides, Geoffrey Charles; and Thompson, David Harry, 3,708,512.

Lloyd, David Dale: *See—*
Jones, Morris, 3,708,183.

Loewenstein, Klaus L.; Eisenberg, Earnold J.; and Warshaw, Saul, to Oliver Glass Fiber Corporation. Apparatus for producing glass fibers. 3,708,271, Cl. 65-12.000.

Loffler, Wilhelm; and Rieber, Martin, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Fire-proofing of polyester fibers. 3,708,328, Cl. 117-93.310.

Lofgren, Harold C., to Honeywell Inc. Electrochemical cell with composite electrode-membranes. 3,708,412, Cl. 204-195.00p.

Logemann, Willy: *See—*
Lauria, Francesco; Vecchietti, Vittorio; and Logemann, Willy, 3,708,482.

Lohmann & Stollerfoht Aktiengesellschaft: *See—*
Szynka, Peter, 3,708,048.

Loiseau, Gerard Paul Marie Henri: *See—*
Nordmann, Joseph; Mattioda, Georges Dominique; and Loiseau, Gerard Paul Marie Henri, 3,708,544.

Long, George Ernest, III: *See—*
Brown, Malcolm George, Jr.; Guille, Gilbert James, Jr.; and Long, George Ernest, III, 3,708,622.

Loos, John F.; and Unkle, Truman F., Jr., to Gulf Oil Corporation. Electrochemical energy conversion system. 3,708,345, Cl. 136-160.000.

Lorain Products Corporation: *See—*
Butler, Luther C., Jr.; and Jamieson, Robert S., 3,708,686.

Lorenz, Jerome L., to Ranco Incorporated. Zero voltage switch means for control of electric load circuit. 3,708,696, Cl. 307-252.00b.

Losco, Giuseppe: *See—*
Cassar, Luigi; Chiusoli, Gian Paolo; Foa, Marco; Losco, Giuseppe; and Fmai, Franco, 3,708,518.

Lother, Rolf: *See—*
Salamon, Wolfgang; and Lother, Rolf, 3,708,765.

Lounsbury, Donald Mack: *See—*
Vantill, Martinus Pieter Richard; Laing, Graham Stirling; and Lounsbury, Donald Mack, 3,708,634.

Lovett, Stanley L., Jr., to Rochester Corporation, The. Method and apparatus for attaching fairing strips to cables. 3,707,836, Cl. 57-1.0un.

Lowell, Francis C.: *See—*
Forlini, Matthew; Lowell, Francis C.; and Saxe, Robert L., 3,708,219.

Lowenfeld, Rudolf; and Kosubek, Uwe, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Process for the dyeing of textile material made from mixtures of polyester and cellulosic fibers. 3,708,257, Cl. 8-21.00c.

Lubeck, John F.: *See—*
Waymire, Gary R.; and Lubeck, John F., 3,708,393.

Lubowitz, Hyman R.; Burns, Eugene A.; and Jones, John F., to TRW Inc. Process for bonding surfaces with polyimide prepolymers. 3,708,370, Cl. 156-331.000.

Lubowitz, Hyman R., to TRW Inc. Molding powder prepolymers. 3,708,459, Cl. 260-65.000.

Lubrizol Corporation, The: *See—*
Hoke, Donald Irvin, 3,708,447.
Le Suer, William Monroe, 3,708,522.

Luckey, George W., to Eastman Kodak Company. Silver-dye-bleach photographic materials. 3,708,300, Cl. 96-73.000.

Ludke, Gunther: *See—*
Buchfuhrer, Gerhard; Dudszus, Alfred; Milles, Wilhelm; Lerche, Franz; Feyer, Gunter; Krause, Manfred; Grunwald, Josef; Hensel, Ulrich; Aust, Ingo; Ewald, Gunter; Langer, Walter; Ludke, Gunther; Mohle, Karl-Georg; Oberlander, Joachim; Kowalski, Horst; Gatzk, Eckard; Pernaux, Gerd; Schwank, Otto; Leschnewski, Konrad; Brose, Reinhard; Hartwig, Gunter; and Ploetz, Ulrich, 3,708,100.

Lukichev, Nikolai Dmitrievich: *See—*
Smirnov, Boris Andreevich; Axenova, Emilia Ivanovna; Rychkov, Vladimir Leonidovich; and Lukichev, Nikolai Dmitrievich, 3,707,970.

Lundstedt, Erik, to Hood, H. P., Sons, Inc. Method of drying acid whey and sweet skim milk solids in combination. 3,708,307, Cl. 99-57.000.

Luthi, Oscar, to Improved Machinery Inc. Pump having rotor with transverse feed and discharge. 3,708,249, Cl. 417-203.000.

Lutz, Karl Anton, to Siemens Aktiengesellschaft. Switching center for PCM-time multiplex telephone network. 3,708,626, Cl. 179-18.00j.

Lux, George K.; Ellis, James B.; and Schulze, John J., to Addressograph-Multigraph Corporation. Photoelectrostatic copying machine. 3,708,161, Cl. 271-9.000.

Lyons, James Wilfred, to Hawker Siddeley Aviation Limited. Cassegrain antenna mounted in aircraft nose cone. 3,708,795, Cl. 343-708.000.

Lyshkow, Norman A., to Pollution Monitors, Inc. Colorimeter for determining the concentration of a pollutant gas in an air sample. 3,708,265, Cl. 23-254.000.

M & T Chemicals, Inc.: *See—*
Reifenberg, Gerald H.; and Considine, William J., 3,708,549.

Mabrey, Lindell E.; and Fogelson, Richard C. Graphic display system. 3,707,792, Cl. 40-219.000.

Macaulay, William R.; Bilhorn, John M.; and Anderson, Kent V., to ESB Incorporated. Method of constructing multicell batteries. 3,708,349, Cl. 136-175.000.

MacGinitie, Gordon F.: *See—*
Ferrier, Hermann A.; and MacGinitie, Gordon F., 3,708,693.

Machine Ice Co.: *See—*
McAshan, Robert B., Jr., 3,707,851.

Machlett Laboratories, Incorporated, The: *See—*
Blacker, Allen Palmer, Jr., 3,708,673.

MacMillan Bloedel Limited: *See—*
Delta, Vladimir Hach; and Higson, Harold G., 3,708,521.

Magnaflux Corporation: *See—*
Prine, David W., 3,708,665.

Magosch, Karl-Heinz: *See—*
Rombusch, Konrad; and Magosch, Karl-Heinz, 3,708,464.

Maguire, Eileen: *See—*

Kadison, Leon A.; and Maguire, Eileen, 3,708,430.
Maier, Oskar: *See—*
Blaich, Emil; Maier, Oskar; and Ziegler, Bodo, 3,708,347.
Maitra, Kumar N., to Beloit Corporation. Web pickup arrangement for paper making machines. 3,708,389, Cl. 162-306.000.
Malinow, Sidney; and Craine, Joseph B. Poultry product and method. 3,708,312, Cl. 99-194.000.
Malkin, Irving: *See—*
Kennedy, Alexander W.; and Malkin, Irving, 3,708,350.
Mallory, P. R., & Co., Inc.: *See—*
Schmidgall, Phillip L., 3,707,776.
Malm, Marvin Forest; and McKinney, Joseph Charles, to International Telephone and Telegraph Corporation. Meter circuit for measuring the make-to-break ratio of pulses. 3,708,792, Cl. 340-253.00r.
Maneck, Ernst: *See—*
Klebba, Horst; and Maneck, Ernst, 3,708,192.
Manning, Robert E.: *See—*
Anderson, Paul L.; Houlihan, William J.; and Manning, Robert E., 3,708,484.
Manning, Stanley A.: *See—*
Hildenbrand, Walter W.; Levine, Wilbur J.; Manning, Stanley A.; and Stroms, Karl F., 3,708,798.
Mannix Construction Inc.: *See—*
Danko, Raymond A.; and Minge, Donald L., 3,707,808.
Manzo, Joseph F.; Harris, James P.; Harris, Robert T.; and Mauch, Erwin W., to Brite Industries, Inc. Adjustable end connector for watchbands. 3,707,744, Cl. 24-265.00b.
Marancik, William G.: *See—*
Shattes, Walter J.; Marancik, William G.; and Kirk, Bradley S., 3,708,606.
Marcade, Roque D.; and Janke, Donald E., to Whirlpool Corporation. Electrical connection and ground monitor. 3,708,721, Cl. 317-18.00b.
Marchal, Paul Henri. Treatment of continuous sheet material. 3,707,743, Cl. 24-252.00r.
Marinkovic, Zoran, to Honeywell Information Systems Inc. Solid state relay using photo-coupled isolators. 3,708,672, Cl. 250-209.000.
Markiel, Henry. Combination wheel chair and walker. 3,708,182, Cl. 280-289.000.
Marks, Robert T.: *See—*
Brooks, Robert E.; and Marks, Robert T., 3,707,844.
Marley Company, The: *See—*
Holmberg, Joyce D.; and Allgeyer, Earl R., 3,708,155.
Marrie, Paul, to Societe a Responsabilite Limitee dite: Etud. Two-plate griddle. 3,707,906, Cl. 99-372.000.
Marshall, Clifford; and Kalinowski, Stanislaw, to Imperial Chemical Industries, Limited. Textile treatment process. 3,708,260, Cl. 8-111.000.
Martel, Jacques; and Heymes, Rene, to Roussel-UCLAF. Process of total synthesis of cephalosporin derivatives and intermediates. 3,708,477, Cl. 260-243.00c.
Martelli, Mario. Reed switch. 3,708,770, Cl. 335-154.000.
Martin, Gregory L., to Goodyear Aerospace Corporation. Automatic focusing of optical systems. 3,708,619, Cl. 178-7.920.
Martin-Marietta Corporation: *See—*
Croucher, William C.; and Chihoski, Russell A., 3,708,648.
Hardin, Robert H.; and Hill, Keith H., 3,708,786.
Maschinenfabrik Windmoller & Holscher: *See—*
Finke, Arno; and Bosse, Frank, 3,708,377.
Mason, Charles M.; and Forshey, David R., to United States of America, Interior. Urea-modified ammonium nitrate-fuel oil explosives. 3,708,356, Cl. 149-2.000.
Mass, Dieter: *See—*
Engelsmann, Dieter; Kessler, Fritz; Mass, Dieter; and Zattler, Kurt, 3,707,904.
Massachusetts Institute of Technology: *See—*
Haldeman, Charles W., III, 3,708,248.
Masselot, Yves: *See—*
Aubry, Bernard; Gillot, Jacques; Masselot, Yves; and Teboul, Albert, 3,708,157.
Masson, Narinder; Korenicki, William John; and Lechner, Walter Ludwig, to Gamon-Camet Industries, Inc. Compound fluid meter. 3,707,872, Cl. 73-231.00r.
Masterson, Frank Harrison: *See—*
Grundon, Forrest Robert; Masterson, Frank Harrison; Wagler, Robert John; and Wustrau, Fred Ernest, 3,707,944.
Mateo Grau e Hijos, SA: *See—*
Soler, Federico Martinez; and Gomez, Jacinto Salvado, 3,708,025.
Matsuda, Ryoichi; Terai, Masaaki; and Hojyo, Yasuo, to Nippon Telegraph and Telephone Public Corporation. Telephone circuits utilizing active elements. 3,708,630, Cl. 179-81.00a.
Matsui, Katsuaki: *See—*
Murayama, Keisuke; Morimura, Syoji; Higashida, Susumu; Matsui, Katsuaki; Kurumada, Tomoyuki; and Onta, Noriyuki, 3,708,488.
Matsumoto, Hirofumi: *See—*
Nakada, Masshiko; and Matsumoto, Hirofumi, 3,707,954.
Matsumoto, Seiji; and Tamai, Yasuo, to Fuji Photo Film Co., Ltd. Electrophotographic device. 3,707,943, Cl. 118-7.000.
Matsuo, Yoshihiro; Sasaki, Hiromu; and Hayakawa, Shigeru, to Matsushita Electric Industrial Co., Ltd. Ceramic niobate dielectric materials. 3,708,315, Cl. 106-39.00r.
Matsushita Electric Industrial Co., Ltd.: *See—*
Kunishige, Hidenori; and Uchida, Kosaku, 3,707,941.
Matsuo, Yoshihiro; Sasaki, Hiromu; and Hayakawa, Shigeru, 3,708,315.
Nakabe, Ryuhei; Fujisawa, Seiji; Sugihara, Yasuhiro; and Meki, Norio, 3,708,613.
Nakabe, Ryuhei; and Fujisawa, Seiji, 3,708,614.
Nishino, Atsushi; Kumano, Hiroshi; Noguchi, Yoshinori; Sonetaka, Kazunori; and Amano, Yasuji, 3,708,408.
Yamamoto, Hiroshi, 3,707,971.
Yamamoto, Keisuke, 3,708,621.
Yamamoto, Kozo, 3,707,779.
Matsushita Electronics Corporation: *See—*
Kimura, Masamichi, 3,708,714.
Matsuyama, Shigeru: *See—*
Kishida, Tohru; Arikawa, Tadashi; Matsuyama, Shigeru; and Fukushige, Shinobu, 3,708,314.
Mattel, Inc.: *See—*
Buck, Gordon H., 3,707,805.
Cook, John S., 3,707,804.
La Branche, Harvey W., 3,707,761.
Strader, George C.; and Goldfarb, Adolph E., 3,708,168.
Tucker, James I., Jr.; Bales, Joseph H.; Bosley, Denis V.; Prodger, Brian S.; Ruppel, Kurt; and Summerfield, William F., 3,707,802.
Woodward, Arthur S., 3,708,116.
Matterstock, Karl: *See—*
Von Der Eltz, Hans-Ulrich; Gunther, Dieter; Krell, Karl-Heinz; Matterstock, Karl; and Vollmann, Hansjorg, 3,708,258.
Matthews, Max. Universal spine and splinting board. 3,707,734, Cl. 5-82.000.
Mattimoe, Paul T.: *See—*
Alexander, Harold M.; Mattimoe, Paul T.; and Hofmann, John J., 3,708,386.
Mattioda, Georges Dominique: *See—*
Nordmann, Joseph; Mattioda, Georges Dominique; and Loiseau, Gerard Paul Marie Henri, 3,708,544.
Matuoka, Hideo, to Iwatsu Electric Company, Ltd. Ramp voltage wave generating circuits. 3,708,692, Cl. 307-228.000.
Matzel, George J., to Stop-Motion Devices Corporation. Yarn catcher. 3,707,854, Cl. 66-125.00r.
Mauch, Erwin W.: *See—*
Manzo, Joseph F.; Harris, James P.; Harris, Robert T.; and Mauch, Erwin W., 3,707,744.
Mauck, James W.: *See—*
Platz, Gerald M.; Palmer, William H.; and Mauck, James W., 3,708,410.
Mayala, Arne H., to Minnesota Mining and Manufacturing Company. Cartridge-type crimping tool. 3,707,867, Cl. 72-410.000.
Mayer, James F.; and Weisz, Robert G., to Standard Oil Company. Hydraulic fracturing proppant composition and method for forming such proppants. 3,708,560, Cl. 264-13.000.
Mayo, Kenneth E.; and Fitzgearld, Joseph J., to Sanders Nuclear Corporation. Isotopic thermal power source. 3,708,268, Cl. 29-182.500.
Mazelsky, Bernard, to ARA Inc. Construction for safety air cushion system. 3,708,181, Cl. 280-150.0ab.
Mazichenko, Stanislav Anisimovich: *See—*
Kononenko, Vadim Grigorievich; Yatsenko, Vasilievich; Komnatny, Igor Pavlovich; Schenkochikhin, Serafim Vasilievich; Stelmakh, Viktor Alexeevich; Mazichenko, Stanislav Anisimovich; and Kudryavtsev, Valentin Semenovich, 3,707,896.
MBT Corporation: *See—*
Misch, Robert D.; and Daus, Donald A., 3,707,751.
Misch, Robert D.; and Daus, Donald A., 3,708,225.
Mc Cann, Farrell A., to Northrop Corporation. Plural beam electron beam scanner utilizing a modulation grid. 3,708,713, Cl. 315-12.000.
Mc Donald, Louis. Detergent compositions containing silica colloids. 3,708,428, Cl. 252-109.000.
Mc Elderry, Charles E. Device for shearing a felled tree. 3,707,895, Cl. 83-623.000.
Mc Farland, James W., to Pfizer Inc. 3-(Hydroxy-phenyl) substituted amidines and derivatives thereof as anthelmintic agents. 3,708,584, Cl. 424-251.000.
McAshan, Robert B., Jr., to Machine Ice Co. Refrigeration system efficiency monitor. 3,707,851, Cl. 62-125.000.
McCarthy, Justin H., Jr., to International Business Machines Corporation. Printer control with monodirectional and bidirectional printing compatibility. 3,708,050, Cl. 197-1.00r.
McConnell, R. H., & Co., Ltd.: *See—*
Alie, Gerald, 3,708,371.
McCord Corporation, mesne: *See—*
Hulten, Richard E., 3,708,179.
McCord, John B.: *See—*
Theis, James V., Jr.; McCord, John B.; and Holly, Harry H., 3,708,241.
McCullough, Harry J.; Shahid, John M.; and Boyd, Aland, to Parker Hannifin Corporation. Vertical mold press for molding articles of rubber-like material. 3,708,254, Cl. 425-235.000.
McDanield, John S., to Whirlpool Corporation. Packaging pad. 3,708,101, Cl. 229-14.00c.
McDonald, Bruce A., to Unisem Corporation. Gallium arsenide intergrated circuit. 3,708,731, Cl. 317-235.00r.
McDonald, Gerald J.: *See—*
Coon, Clifford L.; McDonald, Gerald J.; and Hill, Marion E., 3,708,546.

McErlane, James Edward; and Palmer, Russell Neal, to Du Pont de Nemours, E. I., and Company. Apparatus for winding yarn. 3,708,133, Cl. 242-18.00a.

McGee, Sherwood W.: *See—*
Andreotti, Eugene R.; and McGee, Sherwood W., 3,708,281.

McGourty, Thomas K., to EDP Limited, mesne. Teaching machine. 3,707,778, Cl. 35-9.006.

McGraw-Edison Company: *See—*
Buckley, Norman A., 3,707,855.

McGusty, Elizabeth R.; and Sutton, Blaine M., to Smith Kline & French Laboratories. Anti-arthritic compositions comprising a trialkylphosphine gold complex of a 1-beta-D-glucopyranoside and methods of producing anti-arthritic activity. 3,708,579, Cl. 424-10.000.

McIntosh, Ronald C.: *See—*
Purdy, Haydn V.; and McIntosh, Ronald C., 3,707,902.

McKeever, Earl J. Wall clamp for electrical cords. 3,708,778, Cl. 339-75.00p.

McKinley, Suzanne V.; and Rakshys, Joseph W., Jr., to Dow Chemical Company, The. Cross-linked styrylphosphine resins. 3,708,462, Cl. 260-80.780.

McKinney, Joseph Charles: *See—*
Malm, Marvin Forest; and McKinney, Joseph Charles, 3,708,792.

McMahon, Donald H., to Sperry Rand Corporation. Holographic non-isotropic diffusing screen. 3,708,217, Cl. 350-3.500.

McMaster, Robert C.; and Libby, Charles C., to Ohio State University, The; Board of trustees of the. System for measuring output power of a resonant piezoelectric electromechanical transducer. 3,708,745, Cl. 324-56.000.

McNally, George P.; and Jonasch, Edward A., to Glastool Corporation, mesne. Rake. 3,707,835, Cl. 56-400.010.

McNelia, John F.: *See—*
Duncan, Cecil L.; McNelia, John F.; and Pickler, William C., 3,707,912.

McWhorter, William C.; and Dykes, Norman, to United States of America, Atomic Energy Commission. Method and composition for preparing graphite products. 3,708,451, Cl. 260-29.800.

Mechanical Technology Incorporated: *See—*
Wilcock, Donald F.; and Winn, Leo W., 3,708,215.

Meki, Norio: *See—*
Nakabe, Ryuhei; Fujisawa, Seiji; Sugihara, Yasuhiro; and Meki, Norio, 3,708,613.

Meleka, Abdou Hanna; and Proops, William Alfred, to Secretary of State for Defence, mesne. Metal working. 3,707,754, Cl. 29-156.80h.

Mendel, Arthur: *See—*
Harrington, Joseph K.; Kvam, Donald C.; Mendel, Arthur; and Robertson, Jerry E., 3,708,491.

Menju, Shinichi; and Aoyagi, Hirokuni, to Tokyo Shibaura Electric Company, Ltd. Potential transformer having a bar-shaped magnetic core. 3,708,774, Cl. 336-84.000.

Menson Corporation: *See—*
Fruit, Jerry L., 3,707,868.

Meraz, Daniel, Jr.; Simshauser, Anthony J.; Yeakey, Jack A.; and Carpenter, David W., to United States of America, Navy. Igniter assembly. 3,707,916, Cl. 102-49.700.

Merck & Co., Inc.: *See—*
Christy, Marcia E., 3,708,525.
Firestone, Raymond A., 3,708,535.
Hannah, John, 3,708,510.

Merk, Lothar; Michael, Wolfgang; and Munch, Werner, to Schuler, L., GmbH. Press equipped with a transfer device. 3,707,908, Cl. 100-207.000.

Mertens & Co. Kommanditgesellschaft: *See—*
Lamkemeyer, Klaus, 3,708,201.

Merz, Herbert; Freter, Kurt; and Zeile, Karl. N-Cinnamyl-4-(3'-hydroxyphenyl)-4-propionyl-piperidine and salts. 3,708,597, Cl. 260-240.00k.

Metallgesellschaft Aktiengesellschaft: *See—*
Dorschner, Oskar; Carduck, Franz Josef; and Kuhne, Norbert, 3,707,838.

Methode Manufacturing Corporation: *See—*
Kozel, Charles A.; Baraglia, Nathan A.; and Wright, George C., 3,708,610.

Metzendord, Walter: *See—*
Franck, Heinz-Gerhard; Metzendord, Walter; Turowski, Johannes; Omran, Jaafar; and Nijssen, Jozef H. G., 3,708,442.

Meyer, Gerhard: *See—*
Kersten, Hilde; Heinrichs, Gunter; Meyer, Gerhard; and Laudien, Dieter, 3,708,496.

Meyer, Horst: *See—*
Rucker, Dietrich; Bossert, Friedrich; Meyer, Horst; and Vater, Wulf, 3,708,489.

Meyers, Marion Douglas; and Augurt, Thomas Anthony, to American Cyanamid Company. High conductivity electrolyte gel materials. 3,708,220, Cl. 350-160.00r.

Michael, Wolfgang: *See—*
Merk, Lothar; Michael, Wolfgang; and Munch, Werner, 3,707,908.

Michon, Maurice: *See—*
Collier, Franck; Dauchy, Jean-Daniel; Sargent, Christian; and Michon, Maurice, 3,708,759.

Micro Metals, Inc.: *See—*
Neville, John Leo, 3,708,651.

Microdot, Inc.: *See—*
Pierce, Robert G., 3,708,780.

Middleton, Terence H., to British Leyland (Austin-Morris) Limited and Borden Chemical Company (U.K.) Limited. Production of foundry cores. 3,708,154, Cl. 259-2.000.

Mikherjee, Barid B.; Brown, Dale G.; and Hill, Ira D., to Tenneco Chemicals, Inc. 2,2-Dimethyl-3-substituted-cyclopropanecarboxylic acids and a process for their production. 3,708,528, Cl. 260-514.00p.

Miller, Bernard; and English, Jackson Pollard, to American Cyanamid Company. Methods of controlling insects using quinoxalinyl N4-oxide phosphate. 3,708,580, Cl. 424-200.000.

Miller, David H.: *See—*
Miller, Joseph G.; Stichman, John H.; and Bernstein, Theodore, 3,708,685.

Miller, Donald F.: *See—*
Enright, Dennis J.; Kahabka, Richard D.; and Miller, Donald F., 3,708,779.

Miller Fluid Power Corporation, mesne: *See—*
Flick, Francis S., 3,708,188.

Miller, Joseph G.: *See—*
Miller, Joseph G.; Stichman, John H.; and Bernstein, Theodore, 3,708,685.

Miller, Joseph G.; Stichman, John H.; and Bernstein, Theodore, 1/3 to said Miller, Joseph G., 1/3 to Evans, Marvin and 1/3 to Miller, David H. High inductive load energizing circuit. 3,708,685, Cl. 307-104.000.

Miller, Roland E.; and Neill, David M., to Kraftco Corporation. Dispensing method and apparatus. 3,708,055, Cl. 198-34.000.

Miller, William A.: *See—*
Sleggs, Alton C.; and Miller, William A., 3,708,562.

Milles, Wilhelm: *See—*
Buchfuhrer, Gerhard; Dudszus, Alfred; Milles, Wilhelm; Lerche, Franz; Feyer, Gunter; Krause, Manfred; Grunwald, Josef; Hensel, Ulrich; Aust, Ingo; Ewald, Gunter; Langer, Walter; Ludke, Gunther; Mohle, Karl-Georg; Oberlander, Joachim; Kowalski, Horst; Gatzk, Eckard; Pernaux, Gerd; Schwank, Otto; Leschnewski, Konrad; Brose, Reinhard; Hartwig, Gunter; and Ploetz, Ulrich, 3,708,100.

Milligan, Barton: *See—*
Bechara, Ibrahim S.; De La Mater, George B.; and Milligan, Barton, 3,708,533.

Mimino, Tohru; Kinoshita, Kazuhisa; and Hattori, Keisuke, to Nippon Kokan Kabushiki Kaisha. High temperature low alloy steel. 3,708,280, Cl. 75-124.000.

Miner Enterprises, Inc.: *See—*
LaBelle, Laurence Treffle, 3,708,075.

Minge, Donald L.: *See—*
Danko, Raymond A.; and Minge, Donald L., 3,707,808.

Minnesota Mining and Manufacturing Company: *See—*
Carlson, Robert C., 3,708,333.
Enright, Dennis J.; Kahabka, Richard D.; and Miller, Donald F., 3,708,779.
Groves, James D., 3,708,537.
Mayala, Arne H., 3,707,867.
Tung, Chi Fang, 3,708,378.

Misch, Robert D.; and Daus, Donald A., to MBT Corporation. Dampering roller having hydrophilic surface coating. 3,707,751, Cl. 29-132.000.

Misch, Robert D.; and Daus, Donald A., to MBT Corporation. Coated synthetic plastic lens. 3,708,225, Cl. 351-160.000.

Mistarz, Robert J.; and Mojonnier, Albert B., Sr., to Koehring Company. Pedestal assembly. 3,708,376, Cl. 156-580.000.

Mitchell, Angelo Michael, to Corning Glass Works. Automatic tube transfer firepolishing apparatus and method. 3,708,273, Cl. 65-120.000.

Mitchell, Graham R., to General Electric Company. Vacuum type electric circuit breaker. 3,708,638, Cl. 200-144.00b.

Mitchell, John W.: *See—*
Bedenk, William T.; and Mitchell, John W., 3,708,308.

Mitsuhashi, Masakazu; Hirao, Mamoru; and Sugimoto, Kaname, to Hayashibara Company. Process for producing maltitol. 3,708,396, Cl. 195-31.00r.

Mitton, Robert E., 30% to Johnson, Hal C., 30% to Jones, Shirley M., 30% to Jones, Marie and 10% to Ross, Eric D. Dual master cylinder assembly. 3,707,845, Cl. 60-54.60r.

Miyamoto, Masuo: *See—*
Yokotani, Hajime; Miyamoto, Masuo; and Murata, Tadakazu, 3,708,540.

Miyasaka, Mamoru, to Kabushiki Kaisha Suwa Seikosha. Stem construction in a calendar watch. 3,707,840, Cl. 58-58.000.

Miyasaka, Mamoru, to Kabushiki Kaisha Suwa Seikosha. Eccentric cam structure for an automatically wound watch. 3,707,841, Cl. 58-82.00r.

Mizoguchi, Hidekazu: *See—*
Watanabe, Masao; Mizoguchi, Hidekazu; and Hoshikawa, Makio, 3,708,262.

Mizuta, Norio: *See—*
Tsubakimoto, Tsuneo; Nikki, Masao; and Mizuta, Norio, 3,708,452.

MKT-tehtaat Oy: *See—*
Syrjanen, Eero; and Reijonen, Olavi, 3,707,769.

Mletzko, Alfred E.: *See—*
Solomon, Kenneth R.; Mletzko, Alfred E.; and Walker, Donald J., 3,708,797.

Mobil Oil Corporation: *See—*
Dismukes, Newton B., 3,708,013.
King, Samuel F., 3,708,245.

Modine Manufacturing Company: *See—*
Zimprich, John W., 3,708,012.

Moen, Walter K.: *See—*
United States of America, National Aeronautics and Space Administration, 3,708,419.

Mohle, Karl-Georg: *See—*
Buchfuhrer, Gerhard; Dudszus, Alfred; Milles, Wilhelm; Lerche, Franz; Feyer, Gunter; Krause, Manfred; Grunwald, Josef; Hensel, Ulrich; Aust, Ingo; Ewald, Gunter; Langer, Walter; Ludke, Gunther; Mohle, Karl-Georg; Oberlander, Joachim; Kowalski, Horst; Gatzk, Eckard; Pernaux, Gerd; Schwank, Otto; Leschnewski, Konrad; Brose, Reinhard; Hartwig, Gunter; and Ploetz, Ulrich, 3,708,100.

Moiroux, Auguste: *See—*
Barthalon, Maurice; Moiroux, Auguste; and Watson, Patrick, 3,707,924.

Mojonnier, Albert B., Sr.: *See—*
Mistarz, Robert J.; and Mojonnier, Albert B., Sr., 3,708,376.

Mokrushin, Stanislav Alexandrovich: *See—*
Radchenko, Ruslan Vasilievich; and Mokrushin, Stanislav Alexandrovich, 3,708,246.

Molyneux, George, to Econa (G.&B.) Plastics Limited. Building construction and elements for use therein. 3,707,815, Cl. 52-213.000.

Monsanto Company: *See—*
Hopkins, Byrd, 3,708,658.
Junker, Bernhard T.; Breeding, Terry G.; Hoyt, Michael T.; and Hedrick, Ross M., 3,708,566.

Monsanto Company, mesne: *See—*
Kardos, John Louis, 3,708,456.

Montecatini Edison S.p.A.: *See—*
Cassar, Luigi; Chiusoli, Gian Paolo; Foa, Marco; Losco, Giuseppe; and Fmai, Franco, 3,708,518.
Cassar, Luigi; Foa, Marco; and Chiusoli, Gian Paolo, 3,708,529.

Moore, William Stanley, to National Research Development Corporation. Waveguide coupling device. 3,708,767, Cl. 333-24.00r.

Morgan, Robert D. Artificial leg. 3,707,731, Cl. 3-21.000.

Mori, Takaazu, to Toyota Jidosha Kogyo Kabushiki Kaisha. Abrupt brake application indicator for a motor vehicle. 3,708,782, Cl. 340-66.000.

Morimura, Syoji: *See—*
Murayama, Keisuke; Morimura, Syoji; Higashida, Susumu; Matsui, Katsuaki; Kurumada, Tomoyuki; and Onta, Noriyuki, 3,708,488.

Morita, Ken-Ichi; and Kobayashi, Tsuneo, to Toray Industries, Inc. 3-butene-3-cyano-1, 2,-dicarboxylic acid esters. 3,708,516, Cl. 260-464.000.

Morris, Milan Samuel. Basket ball washing device. 3,707,738, Cl. 15-21.00a.

Morrison, Robert B.; and Wyman, Lewis C., to Sheldon, E. H., and Company. Medicine tray for cabinet drawer. 3,708,709, Cl. 312-209.000.

Morrow, Scott I., to United States of America, Army. Oxidizers with improved thermal stability and method of making same. 3,708,357, Cl. 149-2.000.

Mos Technology, Inc.: *See—*
Paivinen, John O., 3,708,690.

Moser, Helmut, to Licentia, Patent-Verwaltungs-G.m.b.H. Amplifier circuit. 3,708,700, Cl. 307-309.000.

Motoren- und Turbinen-Union Munchen GmbH: *See—*
Klass, Georg, 3,707,750.

Motorola, Inc.: *See—*
Caraba, Jerome R.; and Schmidt, Jude P., 3,708,617.
Coleman, Michael G., 3,707,765.
Fajen, Lyle A., 3,708,756.
Havens, Richard Calvin, 3,708,761.
Hofmeister, Richard J.; Steele, Thomas R.; and Goetz, Frederick J., 3,708,618.
Lace, Melvin A., 3,708,135.
Lattin, William W., 3,708,689.

Mottet, Arthur Louis: *See—*
Zernow, Louis; and Mottet, Arthur Louis, 3,707,917.

Mounce, William R., to Cities Service Research & Development Company. Burning unconverted H-oil residual. 3,708,569, Cl. 423-574.000.

Mudgett, John C.: *See—*
Cymbrowitz, Morris M.; and Mudgett, John C., 3,707,813.

Mueller, Curt: *See—*
Hahn, Rasso; and Mueller, Curt, 3,708,468.

Mueller Steam Specialty Division SOS Consolidated: *See—*
Gordon, Robert E., 3,707,987.

Muhlbach, Anton, to USM Corporation. Adhesive applying device. 3,707,946, Cl. 118-410.000.

Mukai, Minoru: *See—*
Ishida, Hiroshi; Isozaki, Isamu; and Mukai, Minoru, 3,707,824.

Muller, Charles B.; and Jones, Fred C., to Scientific Glass Blowing Company. Filter and filter support apparatus. 3,707,832, Cl. 55-486.000.

Muller, Peter, to Andrews Paper & Chemical Co., Inc. Azo couplers of the cyanoacetylated polyamine class. 3,708,301, Cl. 96-91.00r.

Munch, Werner: *See—*
Merk, Lothar; Michael, Wolfgang; and Munch, Werner, 3,707,908.

Munson Mill Machinery Co.: *See—*
Nowak, Leon J., 3,708,129.

Murai, Tohru, to Hitachi, Ltd. Video signal generating system. 3,708,793, Cl. 340-324.00a.

Murakami, Masuo; Isaka, Ichiro; Kawahara, Norio; Kashiwagi, Teruya; Shibanuma, Tadao; and Shiozaki, Tetsuya. a-(p-Chlorophenoxy)isobutyric acid derivatives. 3,708,514, Cl. 260-455.00r.

Murakami, Noboru: *See—*
Asano, Tadao; and Murakami, Noboru, 3,707,891.

Murata, Tadakazu: *See—*
Yokotani, Hajime; Miyamoto, Masuo; and Murata, Tadakazu, 3,708,540.

Murayama, Keisuke; Morimura, Syoji; Higashida, Susumu; Matsui, Katsuaki; Kurumada, Tomoyuki; and Onta, Noriyuki, to Sankyo Company, Limited. Process for the preparation of N.N' disulfide compounds. 3,708,488, Cl. 260-293.630.

Murayama, Masayuki; and Abe, Koichi, to Japan Gas-Chemical Company, Inc. Process for producing hydroxylalkylacrylates or hydroxyalkylmethacrylates. 3,708,524, Cl. 260-486.00b.

Murray, Robert Maclay, to AMP Incorporated. Electrical connector, method and apparatus. 3,707,932, Cl. 113-119.000.

N L Industries, Inc.: *See—*
Ippolito, Anthony D.; and Van Arsdale, Howard, 3,708,448.
Ippolito, Anthony D.; and Van Arsdale, Howard, 3,708,449.

Naber, Jaap E.: *See—*
Dautzenberg, Frits M.; Naber, Jaap E.; and Verwey, Cornelis W. J., 3,707,831.

Naga, Katsumi: *See—*
Kurokawa, Toshio; Nishiyama, Shoji; Okubo, Toshio; and Naga, Katsumi, 3,708,662.

Nagae, Kenji: *See—*
Fujiwara, Shigeru; Nagae, Kenji; and Okuhashi, Tomomi, 3,708,335.

Nagasaki, Hideo: *See—*
Oguri, Hiroki; and Nagasaki, Hideo, 3,708,554.

Nakabe, Ryuhei; Fujisawa, Seiji; Sugihara, Yasuhiro; and Meki, Norio, to Matsushita Electric Industrial Co., Ltd. Color television receiver. 3,708,613, Cl. 178-5.4he.

Nakabe, Ryuhei; and Fujisawa, Seiji, to Matsushita Electric Industrial Co., Ltd. Color television receiver. 3,708,614, Cl. 178-5.4he.

Nakada, Masshiko; and Matsumoto, Hirofumi, to Toyota Jidosha Kogyo Kabushiki Kaisha. Exhaust gas purifying device. 3,707,954, Cl. 123-117.00a.

Nakamura, Shinji: *See—*
Yamahara, Takeshi; Kishimoto, Hiroshi; Nakamura, Shinji; Deguchi, Takashi; and Takamatsu, Shichiro, 3,708,548.

Nakanishi, Atsuo; Izawa, Shinich; and Toyama, Kunio, to Asahi-Dow Limited. Reinforced polyphenylene ether compositions. 3,708,455, Cl. 260-37.00r.

Nakanishi, Susumu, to Pfizer Inc. Recovery of pure cis 11-(3-dimethylaminopropylidene)-6, 11-dihydro-dibenz(b,e)oxepine from admixture with its transisomer. 3,708,498, Cl. 260-333.000.

Nakanuma, Sho: *See—*
Onda, Katsuhiro; Igarashi, Ryo; and Nakanuma, Sho, 3,708,787.

Nakayama, Kiyoshi, to Kyowa Hakko Kogyo Co., Ltd. process for producing nicotinamide adenine dinucleotide. 3,708,394, Cl. 195-28.00n.

Nakayama, Kiyoshi; and Araki, Kazumi, to Hyowa Hakko Kogyo Company, Ltd. Process for producing L-lysine. 3,708,395, Cl. 195-29.000.

Nalco Chemical Company: *See—*
Thompson, Ralph B.; Pappas, Peter G.; and Sandri, Joseph M., 3,708,436.

Nash, David E. Storage battery heater and combined storage battery and heater. 3,708,346, Cl. 136-161.000.

Nasmith, Donald C. Supporting device. 3,708,144, Cl. 248-167.000.

Nassimbene, Ernie George, to International Business Machines Corporation. Retrospective pulse modulation and apparatus therefor. 3,708,748, Cl. 325-38.000.

National Brush Company, mesne: *See—*
Hermann, Benito J., Jr., 3,707,739.

National Cash Register Company, The: *See—*
Combs, Ollah, 3,707,910.
Puvogel, John M., 3,708,726.
Stroble, Howard G., 3,708,323.

National Distillers and Chemical Corporation: *See—*
Platz, Gerald M.; Palmer, William H.; and Mauck, James W., 3,708,410.

National Research Development Corporation: *See—*
Moore, William Stanley, 3,708,767.
Wilton-Davies, Colin C., 3,707,959.

Nazarov, Nikolai Grigorievich; Chinakal, Nikolai Andreevich; Sudnishnikov, Boris Vasilievich; Kostylev, Alexandr Dmitrievich; Gurkov, Konstantin Stepanovich; and Tupitsyn, Konstantin Konstantinovich, to Institut Gornogo dela Sibirskogo Otdelenia Akademii Nuk SSSR. Self-propelled air-punching mechanism. 3,708,023, Cl. 175-19.000.

Nealy, John E.: *See—*
Trimpi, Robert L.; Nealy, John E.; and Grose, William L., 3,708,674.

Nebel, Joseph A. Personal breathing masks. 3,707,966, Cl. 128-212.000.

Nedelec, Lucien; and Gasc, Jean-Claude, to Roussel-UCLAF. Novel 2,2-dimethyl steroids. 3,708,474, Cl. 239-260.55r.

Needham, Donald G.; and Hill, George R., to Phillips Petroleum Company. Pigmented polyolefin compositions containing phthaloayanine compounds. 3,708,457, Cl. 260-41.50c.

Neill, David M.: *See—*
Miller, Roland E.; and Neill, David M., 3,708,055.

Nelson, Peter H.; and Untch, Karl G., to Syntex Corporation. synthesis of [10]-annulenes. 3,708,547, Cl. 260-648.00r.

Nelsson, Nels, to United States Gypsum Company. Shaft cavity wall and stud. 3,707,818, Cl. 52-220.000.

Neuhaus, Heinz; and Peters, Henning, to Friedrich Uhde GmbH. Control system for hydraulic fluid-feed mechanism. 3,707,881, Cl. 91-316.000.

Neville, John Leo, to Micro Metals, Inc. Electric sauna heater. 3,708,651, Cl. 219-365.000.

Newman, Frederick S.; Thorne, John R.; and Hartman, John T., to Scionics Corporation, The. Process for anodizing aluminum and its alloys. 3,708,407, Cl. 204-56.000.

Nickel, Ernst Gunter; Severin, Hans Peter; and Frye, Helmut, to Deutsche Edelstahlwerke Aktiengesellschaft. Vacuum induction melting furnaces. 3,708,600, Cl. 13-27.000.

Niebylski, Leonard M., to Ethyl Corporation. Composite sandwich panel type construction. 3,708,380, Cl. 161-43.000.

Niewyk, Anthony; and Janke, Donald E., to Whirlpool Corporation. Total sensing combination washer-dryer. 3,707,856, Cl. 68-12.00r.

Nijssen, Jozef H. G.: *See—*
Franck, Heinz-Gerhard; Metzendord, Walter; Turowski, Johannes; Omran, Jaafar; and Nijssen, Jozef H. G., 3,708,442.

Nikkel, Ronnie D., to Phillips Petroleum Company. Yarn texturing. 3,707,745, Cl. 28-1.300.

Nikki, Masao: *See—*
Tsubakimoto, Tsuneo; Nikki, Masao; and Mizuta, Norio, 3,708,452.

Nilsson, Lars Konrad, to Telefonaktiebolaget L M Ericsson. Electronic oscillator using R-C filter in which frequency is controlled by one resistor. 3,708,762, Cl. 331-108.00b.

Nimerick, Kenneth Hugh; and Eilers, Louis Hugh, to Dow Chemical Company, The. Stabilizing soils and accumulations of fine particulate material. 3,708,319, Cl. 106-253.000.

Nippon Chemical Industrial Company, Limited: *See—*
Ando, Kazuhiko; Omino, Teiji; and Imamura, Kennosuke, 3,708,557.

Nippon Columbia Kabushikikaisha (Nippon Columbia Co., Ltd.): *See—*
Nishizawa, Masahiro; Wakabayashi, Masashi; and Nishino, Kosuke, 3,708,336.

Nippon Electric Company, Ltd: *See—*
Onda, Katsuhiro; Igarashi, Ryo; and Nakanuma, Sho, 3,708,787.

Nippon Gakki Seizo Kabushiki Kaisha: *See—*
Hiyama, Ryu, 3,708,602.
Ohno, Junji, 3,708,605.
Sotome, Hiromi, 3,708,035.

Nippon Kayaku Co., Ltd.: *See—*
Akito, Eiichiro; Takagi, Toshitsugu; Soda, Yakio; and Ishibashi, Masataka, 3,708,594.

Nippon Kokan Kabushiki Kaisha: *See—*
Mimino, Tohru; Kinoshita, Kazuhisa; and Hattori, Keisuke, 3,708,280.

Nippon Shokubai Kagaku Kogyo, Co., Ltd.: *See—*
Tsubakimoto, Tsuneo; Nikki, Masao; and Mizuta, Norio, 3,708,452.

Nippon Telegraph and Telephone Public Corporation: *See—*
Matsuda, Ryoichi; Terai, Masaaki; and Hojyo, Yasuo, 3,708,630.

Nishida, Yutaka: *See—*
Katakura, Shiro; and Nishida, Yutaka, 3,708,113.

Nishino, Atsushi; Kumano, Hiroshi; Noguchi, Yoshinori; Sonetaka, Kazunori; and Amano, Yasuji, to Matsushita Electric Industrial Co., Ltd. Cell using manganese dioxide as a cathode depolarizer and a method for producing said manganese dioxide. 3,708,408, Cl 204-96.000.

Nishino, Kosuke: *See—*
Nishizawa, Masahiro; Wakabayashi, Masashi; and Nishino, Kosuke, 3,708,336.

Nishioka, Hideki. Rotary mechanism. 3,708,252, Cl. 418-195.000.

Nishiyama, Shoji: *See—*
Kurokawa, Toshio; Nishiyama, Shoji; Okubo, Toshio; and Naga, Katsumi, 3,708,662.

Nishizawa, Masahiro; Wakabayashi, Masashi; and Nishino, Kosuke, to Nippon Columbia Kabushikikaisha (Nippon Columbia Co., Ltd.). Method of making color phosphor screen of color picture tube. 3,708,336, Cl. 117-33.5cm.

Noguchi, Yoshinori: *See—*
Nishino, Atsushi; Kumano, Hiroshi; Noguchi, Yoshinori; Sonetaka, Kazunori; and Amano, Yasuji, 3,708,408.

Nohrenberg, Warren R.: *See—*
Friedgen, Arthur H.; and Nohrenberg, Warren R., 3,708,141.

Nordmann, Joseph; Mattioda, Georges Dominique; and Loiseau, Gerard Paul Marie Henri, to Ugine Kuhlmann. Choleretic and anticonvulsant medicament and a process for its preparation. 3,708,544, Cl. 260-618.00r.

Nordmark, Walter E.: *See—*
Barecki, Chester J.; and Nordmark, Walter E., 3,708,203.

Norota, Susumu: *See—*
Horimoto, Kohei; Kawamura, Masaharu; Norota, Susumu; and Okui, Mitsuhiko, 3,708,561.

North American Rockwell Corporation: *See—*
Birk, James R.; and Huber, Donald A., 3,708,270.
Bochinski, Julius H.; Christe, Karl O.; Gunderloy, Frank C., Jr.; Pilipovich, Donald; and Wilson, Richard D., 3,707,762.
Holder, Ronald W.; and Ferguson, Virgil D., 3,708,089.
Pierro, John J., 3,708,251.
Sorensen, Ronald L.; and Dunn, Charlton, III, 3,708,223.

Northern Electric Company: *See—*
Crowley, George C.; and Berenson, Allen V., 3,708,649.

Northern Electric Company Limited: *See—*
Vantill, Martinus Pieter Richard; Laing, Graham Stirling; and Lounsbury, Donald Mack, 3,708,634.

Northrop Corporation: *See—*
Mc Cann, Farrell A., 3,708,713.

Norton Company: *See—*
Perry, James H., 3,708,130.

Nourigat, Gerard, to Compagnie Generale d'Automatisne. Device for writing and reading magnetic tickets. 3,708,790, Cl. 340-174.10g.

Nowak, Leon J., to Munson Mill Machinery Co. Cutter machine. 3,708,129, Cl. 241-189.000.

Nuccel, Albert W., to Teledyne, Inc. Nozzle welder. 3,708,099, Cl. 228-29.000.

Nutzel, Karl; Dinges, Karl; and Haas, Friedrich, to Bayer Aktiengesellschaft. Process for the preparation of polypentenamers. 3,708,556, Cl. 260-931.000.

N.V. Hollandse Signaalapparaten: *See—*
Van Popta, Yftinus Frederik, 3,708,794.

N.V. Leidsche Apparatenfabriek: *See—*
Van der Meer, Leonardus Petrus, 3,707,822.

Nye, William M.; and Jones, Stanley W., to Lanier Electronic Laboratory, Inc., mesne. Undirectional tape motion detection apparatus and automatic tape return. 3,708,633, Cl. 179-100.20r.

Nyunoya, Mizuo: *See—*
Torri, Tatsumi; Kozakai, Asao; Yamamoto, Takekazu; and Nyunoya, Mizuo, 3,708,044.

Oak Electro/Netics Corporation: *See—*
Cosley, Colman; and Streuer, Wilhelm A., 3,708,635.

Oakite Products, Inc.: *See—*
Parsons, Richard, 3,708,406.

Oberlander, Joachim: *See—*
Buchfuhrer, Gerhard; Dudszus, Alfred; Milles, Wilhelm; Lerche, Franz; Feyer, Gunter; Krause, Manfred; Grunwald, Josef; Hensel, Ulrich; Aust, Ingo; Ewald, Gunter; Langer, Walter; Ludke, Gunther; Mohle, Karl-Georg; Oberlander, Joachim; Kowalski, Horst; Gatzk, Eckard; Pernauz, Gerd; Schwank, Otto; Leschnewski, Konrad; Brose, Reinhard; Hartwig, Gunter; and Ploetz, Ulrich, 3,708,100.

Oceanography Mariculture Industries, Inc.: *See—*
Dunathan, Jay P., 3,707,948.

O'Dell, Herbert Franklin: *See—*
Reed, Bruce D.; and O'Dell, Herbert Franklin, 3,707,785.

Odessky Politekhnichesky Institut: *See—*
Glushko, Mikhail Fedorovich; Skalatsky, Viktor Klimentievich; and Skripnik, Ivan Timofeevich, 3,707,839.

Odinak, Alec: *See—*
Frulla, Floro F.; Odinak, Alec; and Sayigh, Adnan A. R., 3,708,440.

Odioso, Raymond Camillus: *See—*
Compa, Russell Edward; Fischer, Charles Frederick; Hunter, Robert Tweedy, Jr.; and Odioso, Raymond Camillus, 3,708,425.

Oertel, Harald: *See—*
Thoma, Wilhelm; Oertel, Harald; and Rinke, Heinrich, 3,708,453.

Offmann, Charles, to Societe Anonyme dite: Hexachimie (Hauts-de-Seine). 2-Anilino-nicotinic acid esters. 3,708,481, Cl. 260-247.20b.

Ogawa, Kinya: *See—*
Koyanagi, Shunichi; Ogawa, Kinya; Sekigawa, Fujio; Suzuki, Hiroshi; and Ono, Shigeru, 3,708,305.

Oger, Jacques Francois Marie: *See—*
Leblond, Christian Georges; and Oger, Jacques Francois Marie, 3,707,846.

Oguri, Hiroki; and Nagasaki, Hideo, to Taoka Dyestuffs Manufacturing Co., Ltd. Rubber composition. 3,708,554, Cl. 260-848.000.

Ohi, Takuo: *See—*
Okamoto, Hiromu; Ohi, Takuo; Tamura, Jyotaro; Takahashi, Saburo; Oyama, Hiroshi; Ueda, Hideo; Sasaki, Kunihiko; and Ishikawa, Hiromichi, 3,708,278.

Ohio State University, The; Board of trustees of the: *See—*
McMaster, Robert C.; and Libby, Charles C., 3,708,745.

Ohno, Junji, to Nippon Gakki Seizo Kabushiki Kaisha. Magnetically operated keying device for an electronic musical instrument with touch responsive control. 3,708,605, Cl. 84-1.100.

Okamoto, Hiromu; Ohi, Takuo; Tamura, Jyotaro; Takahashi, Saburo; Oyama, Hiroshi; Ueda, Hideo; Sasaki, Kunihiko; and Ishikawa, Hiromichi, to Hokko Chemical Industry Co., Ltd. Method for preventing and killing weeds in rice. 3,708,278, Cl. 71-100.000.

Okano, Yukimitsu: *See—*
Tashiro, Kenichi; Furuto, Yoshio; Shigihara, Takeji; Ikawa, Kazuo; and Okano, Yukimitsu, 3,708,675.

Okubo, Toshio: *See—*
Kurokawa, Toshio; Nishiyama, Shoji; Okubo, Toshio; and Naga, Katsumi, 3,708,662.

Okuhashi, Tomomi: *See—*

Fujiwara, Shigeru; Nagae, Kenji; and Okuhashi, Tomomi, 3,708,335.

Okui, Mitsuhiko: *See—*
Horimoto, Kohei; Kawamura, Masaharu; Norota, Susumu; and Okui, Mitsuhiko, 3,708,561.

Olah, George A., to Esso Research and Engineering Company. Alkylation process utilizing a Lewis acid halide with fluorosulfuric or trifluoromethanesulfonic acid. 3,708,553, Cl. 260-683.470.

Oliver Glass Fiber Corporation: *See—*
Loewenstein, Klaus L.; Eisenberg, Earnold J.; and Warshaw, Saul, 3,708,271.

Olson, John R. Self-propelled water vehicle. 3,707,938, Cl. 115-1.00r.

Omino, Teiji: *See—*
Ando, Kazuhiko; Omino, Teiji; and Imamura, Kennosuke, 3,708,557.

Omran, Jaafar: *See—*
Franck, Heinz-Gerhard; Metzendord, Walter; Turowski, Johannes; Omran, Jaafar; and Nijssen, Jozef H. G., 3,708,442.

Onda, Katsuhiro; Igarashi, Ryo; and Nakanuma, Sho, to Nippon Electric Company, Ltd. Read-only memory employing metal-insulator-semiconductor type field effect transistors. 3,708,787, Cl. 340-173.00r.

Ono Pharmaceutical Co., Ltd.: *See—*
Sugiura, Mamoru; Kano, Kunio; Kimura, Kazuaki; and Oono, Hiroyuki, 3,708,576.

Ono, Shigeru: *See—*
Koyanagi, Shunichi; Ogawa, Kinya; Sekigawa, Fujio; Suzuki, Hiroshi; and Ono, Shigeru, 3,708,305.

Onta, Noriyuki: *See—*
Murayama, Keisuke; Morimura, Syoji; Higashida, Susumu; Matsui, Katsuaki; Kurumada, Tomoyuki; and Onta, Noriyuki, 3,708,488.

Oono, Hiroyuki: *See—*
Sugiura, Mamoru; Kano, Kunio; Kimura, Kazuaki; and Oono, Hiroyuki, 3,708,576.

Optical Coating Laboratory, Inc., mesne: *See—*
Krakow, Burton; Dolin, Stanley A.; and Kruegle, Herman A., 3,708,227.

Optipatent AG: *See—*
Hampel, Gerald, 3,708,567.

Organon Inc.: *See—*
Van Vliet, Nicolaas Pieter; and Peters, Jacobus Albertus Maria, 3,708,511.

Oriani, Agostoni, to Industrie Pirelli S.p.A. Method for restoring the initial work-hardened condition in a conductor portion annealed by welding and apparatus for carrying out said method. 3,707,865, Cl. 72-340.000.

Orr, Samuel M., Jr.: *See—*
Bell, Cecil R.; Swaim, Jessie E.; Gilgo, Horace Paul; Rogers, Robert C.; Sizemore, Walter Ray; and Orr, Samuel M., Jr., 3,707,825.

Osborn, Harry B., Jr., to Park-Ohio Industries, Inc. Method of heating a workpiece of particulate material. 3,708,645, Cl. 219-10.410.

Otdel Fiziko-Tekhnicheskikh Problem Energetiki Uralskogo Filiala An SSSR: *See—*
Radchenko, Ruslan Vasilievich; and Mokrushin, Stanislav Alexandrovich, 3,708,246.

Ovanesov, Jury Vagarshevich: *See—*
Gilev, Vitaly Konstantinovich; Ovanesov, Jury Vagarshevich; Sarkisov, Rafael Tevosovich; and Stepanyan, Ernst Arakelovich, 3,708,054.

Owen, Arthur John; Visser, Reier; and Van Laar, Jacobus, to Koninklijke Nederlandsche Hoogovens en Staalfabrieken, N.V. Metallurgical furnace lining and method of production. 3,708,317, Cl. 106-56.000.

Owens-Illinois, Inc.: *See—*
Fleck, John F., 3,708,274.
Lauffer, Fred E., 3,707,929.
Schepler, Kent L.; and Schmersal, Larry J., 3,708,064.
Skudlarek, Walter R., 3,708,162.

Oyama, Hiroshi: *See—*
Okamoto, Hiromu; Ohi, Takuo; Tamura, Jyotaro; Takahashi, Saburo; Oyama, Hiroshi; Ueda, Hideo; Sasaki, Kunihiko; and Ishikawa, Hiromichi, 3,708,278.

Ozawa, Shigeo: *See—*
Akiyama, Yuji; Ishii, Yasuyoshi; Ozawa, Shigeo; and Takeshima, Saburo, 3,708,706.

Painter, Roy; and Vaughan, Graham John, to Electric Power Storage Limited. Topping-up arrangements for multi-cell electric batteries. 3,708,348, Cl. 136-170.000.

Paivinen, John O., to Mos Technology, Inc. Shift register. 3,708,690, Cl. 307-221.00r.

Palmer, Osmond F.: *See—*
Huboi, Robert W.; Palmer, Osmond F.; and Rising, Bradley D., 3,708,676.

Palmer, Richard F. Simplified marionette. 3,707,803, Cl. 46-126.000.

Palmer, Russell Neal: *See—*
McErlane, James Edward; and Palmer, Russell Neal, 3,708,133.

Palmer, William H.: *See—*
Platz, Gerald M.; Palmer, William H.; and Mauck, James W., 3,708,410.

Pappas, Peter G.: *See—*
Thompson, Ralph B.; Pappas, Peter G.; and Sandri, Joseph M., 3,708,436.

Paramount Health Equipment Corporation: *See—*
Annas, Robert F., 3,708,166.

Pareja, Ramon: *See—*
Sadler, Harry J.; Pareja, Ramon; and Leschisin, John, 3,707,981.

Parilla, Arthur R. Electronic sound effects apparatus with tape cartridge and resiliently mounted switching plate. 3,708,632, Cl. 179-100.10c.

Park-Ohio Industries, Inc.: *See—*
Osborn, Harry B., Jr., 3,708,645.

Parker Hannifin Corporation: *See—*
McCullough, Harry J.; Shahid, John M.; and Boyd, Aland, 3,708,254.

Parker Pen Company, The: *See—*
Hill, Franklin J., 3,708,283.

Parker-Hannifin Corporation: *See—*
Treichler, Ernest, 3,707,878.

Parsons, Richard, to Oakite Products, Inc. Tinning high carbon ferrous metals coated with iron using alkaline plating baths with chelating agents. 3,708,406, Cl. 204-38.00s.

Pastva, John V., Jr., to Eastern Company, The. Key-controlled door lock. 3,707,862, Cl. 70-150.000.

Patel, Bhupendra C.: *See—*
Villari, Frank K.; and Patel, Bhupendra C., 3,707,972.

Patience, Donald; and Collins, Robert F., to Kendall Company, The. Surgical drape with hand receiving cuff having internal stop guides. 3,707,964, Cl. 128-132.00d.

Patterson, James M., Jr., to Farrington Business Machines Corporation. Document positioning means for use with an imprinter. 3,707,911, Cl. 101-269.000.

Patterson, James T. Fluid agitator. 3,708,125, Cl. 239-428.500.

Paul, Bernt, to Siemens Aktiengesellschaft. Device for transmission of information with an infrared radiation source. 3,708,763, Cl. 329-144.000.

Pauls & Sandars, Limited: *See—*
Collier, John Anthony; and Buckley, William Aidan, 3,708,002.

Peake, Ernest R.: *See—*
Grangaard, Orrin H.; and Peake, Ernest R., 3,708,743.

Peetoom, Frans; and Kiddy, Sandra Jean, to Baxter Laboratories, Inc. Infectious mononucleosis diagnostic reagent and method. 3,708,572, Cl. 424-12.000.

Peltec Corporation: *See—*
Brower, David F., 3,707,737.

Pengo Corporation: *See—*
Sturgeon, Walter L., 3,707,788.

Pentel Kabushiki Kaisha: *See—*
Fukuda, Tomomitsu, 3,708,234.

Peppler, William S.: *See—*
Bixler, Kenneth D.; Chaplin, Charles J.; Reifers, Richard F.; and Peppler, William S., 3,708,084.

Perepechkin, Mikhail Ivanovich: *See—*
Alexandrovsky, Nikolai Ivanovich; Pronko, Vadim Fomich; Perepechkin, Mikhail Ivanovich; and Amelchenko, Petr Adamovich, 3,708,017.

Perfex Corporation: *See—*
King, Calvin J., 3,708,006.

Perkin-Elmer Corporation, The: *See—*
Delves, H. Trevor, 3,708,228.

Pernaux, Gerd: *See—*
Buchfuhrer, Gerhard; Dudszus, Alfred; Milles, Wilhelm; Lerche, Franz; Feyer, Gunter; Krause, Manfred; Grunwald, Josef; Hensel, Ulrich; Aust, Ingo; Ewald, Gunter; Langer, Walter; Ludke, Gunther; Mohle, Karl-Georg; Oberlander, Joachim; Kowalski, Horst; Gatzk, Eckard; Pernaux, Gerd; Schwank, Otto; Leschnewski, Konrad; Brose, Reinhard; Hartwig, Gunter; and Ploetz, Ulrich, 3,708,100.

Perrine, Walter E. Firearm muzzle deflector. 3,707,899, Cl. 89-14.00c.

Perry, James H., to Norton Company. Pulp refiners. 3,708,130, Cl. 241-260.000.

Perry, Thomas E., to Republic Steel Corporation. Apparatus for transferring molten metal. 3,708,158, Cl. 266-34.0pt.

Pestka, John A., to Illinois Tool Works, Inc. End connector grommet assembly. 3,708,145, Cl. 248-361.000.

Peters, Ernest C.: *See—*
Cole, Edmund A., 3,707,826.

Peters, Henning: *See—*
Neuhaus, Heinz; and Peters, Henning, 3,707,881.

Peters, Jacobus Albertus Maria: *See—*
Van Vliet, Nicolaas Pieter; and Peters, Jacobus Albertus Maria, 3,708,511.

Petrie, James Alexander: *See—*
Dawson, Lindsay Grahame; Petrie, James Alexander; and Bracey, Kenneth Edward George, 3,708,244.

Petro-Tex Chemical Corporation: *See—*
Croce, Louis J.; and Barone, Bruno J., 3,708,531.

Pettersson, Sven Goran. Apparatus for mounting film transparencies. 3,707,755, Cl. 29-200.00b.

Pettitt, David J., to Kelco Company. Graft copolymers of xanthomonas hydrophilic colloid and acrylic monomer. 3,708,446, Cl. 260-17.4gc.

Pfarrwaller, Erwin, to Sulzer Brothers, Ltd. Weaving machine. 3,707,995, Cl. 139-1.000.

Pfizer Inc.: *See—*
Mc Farland, James W., 3,708,584.
Nakanishi, Susumu, 3,708,498.
Sardinas, Joseph L., 3,708,398.
Sardinas, Joseph L., 3,708,399.

Phillips, Peter: *See—*

Keagle, Charles; Waggoner, Alan; and Phillips, Peter, 3,708,603.

Phillips Petroleum Company: *See—*
Kittleman, Edmund T.; and Zuech, Ernest A., 3,708,551.
Needham, Donald G.; and Hill, George R., 3,708,457.
Nikkel, Ronnie D., 3,707,745.
Ruehlen, Forrest N.; and Fox, Homer M., 3,708,416.
Small, William M., 3,708,142.
Wally, Robert F., 3,708,014.

Philpott, Peter John: *See—*
Bolton, Andrew; Philpott, Peter John; and Scoats, Horace William, 3,708,311.

Pickler, William C.: *See—*
Duncan, Cecil L.; McNelia, John F.; and Pickler, William C., 3,707,912.

Pierce, Robert G., to Microdot, Inc. Multiple wire electrical connector. 3,708,780, Cl. 339-276.000.

Pierro, John J., to North American Rockwell Corporation. Gearless drive method and means. 3,708,251, Cl. 417-356.000.

Pierson, Alexandre, to Commissariat a l'Energie Atomique. Device for production a large direct-current potential difference. 3,708,740, Cl. 321-8.00r.

Pignone Sud S.p.A.: *See—*
Bergamini, Giorgio, 3,707,980.

Pigott, Albert Edward; Tomkins, Brian Bolton; Raraty, Lionel Edward; deceased (by Raraty, Hermanna;), to United Kingdom Atomic Energy Authority. Pressure vessels. 3,707,864, Cl. 72-20.000.

Pilipovich, Donald: *See—*
Bochinski, Julius H.; Christe, Karl O.; Gunderloy, Frank C., Jr.; Pilipovich, Donald; and Wilson, Richard D., 3,707,762.

Pircher, Georges, to Thomson-CSF. System for measuring optical path length across layers of small thickness. 3,708,229, Cl. 356-108.000.

Pisanchyn, John: *See—*
Fuhrmann, Robert; Pisanchyn, John; and Sifniades, Stylianos, 3,708,595.

Pivawer, Philip M., to Techni-Chem Company, The. Process for cleaving 2-nitrocyclohexanone using 6-aminocaproic acid as a catalyst. 3,708,472, Cl. 260-239.30a.

Plakunov, James; and Koller, James Edward, to Eastman Kodak Company. Silver halide emulsion sensitized with thioamine-glutaraldehyde or acrylic aldehyde adduct. 3,708,302, Cl. 96-107.000.

Plastics, Inc.: *See—*
Colato, Albert E., 3,708,086.

Platte, Richard L., to Hoover Ball and Bearing Company. Plastic container. 3,708,082, Cl. 215-1.00c.

Platz, Gerald M.; Palmer, William H.; and Mauck, James W., to National Distillers and Chemical Corporation. Stirrer and radioactive source for polymerization reactor. 3,708,410, Cl. 204-193.000.

Ploetz, Ulrich: *See—*
Buchfuhrer, Gerhard; Dudszus, Alfred; Milles, Wilhelm; Lerche, Franz; Feyer, Gunter; Krause, Manfred; Grunwald, Josef; Hensel, Ulrich; Aust, Ingo; Ewald, Gunter; Langer, Walter; Ludke, Gunther; Mohle, Karl-Georg; Oberlander, Joachim; Kowalski, Horst; Gatzk, Eckard; Pernaux, Gerd; Schwank, Otto; Leschnewski, Konrad; Brose, Reinhard; Hartwig, Gunter; and Ploetz, Ulrich, 3,708,100.

Plotnikoff, Nicholas Peter, to Abbott Laboratories. Method of enhancing learning. 3,708,585, Cl. 424-251.000.

Plotnikoff, Nicholas Peter, to Abbott Laboratories. Use of L-prolyl L-leucyl glycine amide as an anti-depressant. 3,708,593, Cl. 424-274.000.

Polit, Neil A., to Xerox Corporation. Drive clutch for article addressing machine. 3,708,374, Cl. 156-521.000.

Poll, Gerald S.: *See—*
Brown, Norman C.; and Poll, Gerald S., 3,708,487.

Pollution Monitors, Inc.: *See—*
Lyshkow, Norman A., 3,708,265.

Ponzi, Joseph J.: *See—*
Haake, Robert; and Ponzi, Joseph J., 3,708,176.

Poot, Albert Lucien; and Hazenbosch, Edwin Hendrik, to Agfa-Gevaert. Stabilizing with iodide an imagewise exposed photosensitive composition containing a halogenated photoactivator and an organic amine color former. 3,708,297, Cl. 96-48.000.

Popov, Vyacheslav Dmitrievich: *See—*
Gilev, Vitaly Konstantinovich; Popov, Vyacheslav Dmitrievich; Sarkisov, Rafael Tevosovich; and Stephanian, Ernst Arakelovich, 3,708,165.

Potgieter, Jacobus Daniel. Exercising apparatus. 3,708,167, Cl. 272-58.000.

PPC Industries, Inc.: *See—*
Sargent, Cassius E., 3,708,106.

Pratt, George B., to Datron Systems, Inc. Miniature relay. 3,708,768, Cl. 335-128.000.

Precision Field Coil Company: *See—*
Erwin, Henry P., Jr., 3,708,682.

Presnell, William R., to A-T-O Inc. Football. 3,708,170, Cl. 273-65.00a.

Price, Warren R.; and Brownlee, John H., to General Electric Company. Cutting tool for holding a plurality of disposable cutting inserts. 3,707,748, Cl. 29-95.100.

Prine, David W., to Magnaflux Corporation. Method and composition for non-destructive analysis using red laser beams. 3,708,665, Cl. 250-71.00t.

Procter & Gamble Company, The: *See—*
Bedenk, William T.; and Mitchell, John W., 3,708,308.

Prodger, Brian S.: *See—*
Tucker, James I., Jr.; Bales, Joseph H.; Bosley, Denis V.; Prodger, Brian S.; Ruppel, Kurt; and Summerfield, William F., 3,707,802.

Profet, Anthony G., to Duff-Morton Company, Inc. Hoist handle. 3,707,885, Cl. 74-524.000.

Progil: *See—*
Berthoux, Jean; Schneider, Gerard; and Surville, Renaud de, 3,708,523.

Pronko, Vadim Fomich: *See—*
Alexandrovsky, Nikolai Ivanovich; Pronko, Vadim Fomich; Perepechkin, Mikhail Ivanovich; and Amelchenko, Petr Adamovich, 3,708,017.

Proops, William Alfred: *See—*
Meleka, Abdou Hanna; and Proops, William Alfred, 3,707,754.

Prudential Insurance Company of America, The: *See—*
Soxman, Edwin J., 3,708,708.

Prussin, Samuel B. Dispensing package. 3,708,431, Cl. 252-188.300.

Pryor, Clyde Robert: *See—*
Hollingsead, Robert Allen; and Pryor, Clyde Robert, 3,708,642.

Pullman Transport Leasing Company: *See—*
Adler, Franklin P., 3,707,919.

Pundt, Dieter H. W.: *See—*
Bigalke, Erhard; Pundt, Dieter H. W.; and Wolf, Jurgen, 3,707,951.

Purdy, Haydn V.; and McIntosh, Ronald C. Phototypesetting equipment. 3,707,902, Cl. 95-4.500.

Puvogel, John M., to National Cash Register Company, The. Inductor drive means. 3,708,726, Cl. 317-148.50b.

Pylon Manufacturing Corporation: *See—*
Roberts, Harry W., 3,707,741.

Quadracast Systems, Inc.: *See—*
Dorren, Louis, 3,708,623.

Quaker Oats Company, The: *See—*
Dunlop, Andrew P.; and Wuskell, Joseph P., 3,708,502.

Quevrin, Janic, to Compagnie Generale d'Electricite. Matrix with intergrated semiconductors for dead memory. 3,707,767, Cl. 29-593.000.

Quinn, Richard Edward, to RCA Corporation. Apparatus for etching of thin layers of material by ion bombardment. 3,708,418, Cl. 204-298.000.

Rachie, John B. Surfing sailboat. 3,707,935, Cl. 114-39.000.

Radchenko, Ruslan Vasilievich; and Mokrushin, Stanislav Alexandrovich, to Otdel Fiziko-Tekhnicheskikh Problem Energetiki Uralskogo Filiala An SSSR. Electromagnetic pumps for liquid metals. 3,708,246, Cl. 417-50.000.

Raddi, William J., to ESB Incorporated. Body organ stimulator with voltage converter. 3,707,974, Cl. 128-419.00p.

Radecke, Helmut, to Fernseh G.m.b.H. Producing vertical aperture correction signals for television image transmitters 08400110. 3,708,753, Cl. 328-162.000.

Radwill, Robert P., to Amsted Industries, Incorporated. Railway coupler yoke. 3,708,076, Cl. 213-67.00r.

Rakshys, Joseph W., Jr.: *See—*
McKinley, Suzanne V.; and Rakshys, Joseph W., Jr., 3,708,462.

Ralli Bondite Limited: *See—*
Hall, Colin David, 3,708,470.

Ramsey Engineering Company: *See—*
Hill, John L., 3,708,027.

Ranco Incorporated: *See—*
Brooks, Robert E.; and Marks, Robert T., 3,707,844.
Lorenz, Jerome L., 3,708,696.

Rango, Joseph Frederick. Golf putter. 3,708,172, Cl. 273-164.000.

Raraty, Hermanna: *See—*
Pigott, Albert Edward; Tomkins, Brian Bolton; Raraty, Lionel Edward, 3,707,864.

Raraty, Lionel Edward: *See—*
Pigott, Albert Edward; Tomkins, Brian Bolton; Raraty, Lionel Edward, 3,707,864.

Rashis, Bernard, to United States of America, Army. Triphibian mobility propulsion device. 3,708,140, Cl. 244-50.000.

Rasneur, Bernard: *See—*
Herve, Michel; and Rasneur, Bernard, 3,707,870.

Rath, Heinrich Bernhard; and Hess, Wolfgang, to Girling Limited. Disc brakes. 3,708,043, Cl. 188-73.300.

Rauch, Klausheinz: *See—*
Hornfeck, Josef; and Rauch, Klausheinz, 3,707,900.

Rawson, Edward B.; and Fergusin, Joseph B., to Searle Medidate Inc. Data scanner for real time interfacing of a computer and plural remote units. 3,708,785, Cl. 340-172.500.

Ray, Edward C.; and Kahabka, William P., to Goulds Pump Incorporated. Pump maintenance cradle. 3,707,759, Cl. 29-401.000.

Ray, Glen: *See—*
Wielebski, Wayne H.; and Ray, Glen, 3,708,727.

Raychem Corporation, mesne: *See—*
Aichenegg, Paul C.; and Thornhill, Richard A., 3,708,582.

Raymond International Inc.: *See—*
Godley, Augustus P.; Fuller, Francis M.; Houk, Charles R.; Holland, Henry A. Nelson; and Gendron, George J., 3,707,847.

Raynor, Gilbert S., to United States of America, Atomic Energy Commission. Airborne isokinetic sampler. 3,707,869, Cl. 73-28.000.

Raytheon Company: *See—*
Georgopoulos, Christos J., 3,708,697.

RCA Corporation: *See—*
Brown, Malcolm George, Jr.; Guille, Gilbert James, Jr.; and Long, George Ernest, III, 3,708,622.
Quinn, Richard Edward, 3,708,418.

Schanne, Joseph Francis, 3,708,655.
Van Raalte, John A.; and Christiano, Victor, 3,708,712.
Wharton, James Hugh, 3,708,615.

Read, Lorenzo Antonio: *See—*
Schreckenberg, Karl; Klein, Louis; and Read, Lorenzo Antonio, 3,708,771.

Rebsdat, Siegfried: *See—*
Hahn, Helmut; Scherer, Otto; and Rebsdat, Siegfried, 3,708,538.

Reed, Bruce D.; and O'Dell, Herbert Franklin. Teaching apparatus. 3,707,785, Cl. 35-35.00c.

Reichart, Louis W., Jr., to Xerox Corporation. Cross-channel mixer. 3,707,947, Cl. 118-637.000.

Reid, William H.: *See—*
Shand, John R.; and Reid, William H., 3,708,723.

Reifenberg, Gerald H.; and Considine, William J., to M & T Chemicals, Inc. Stannane as a reducing agent. 3,708,549, Cl. 260-668.00r.

Reifers, Richard F.: *See—*
Bixler, Kenneth D.; Chaplin, Charles J.; Reifers, Richard F.; and Peppler, William S., 3,708,084.

Reijonen, Olavi: *See—*
Syrjanen, Eero; and Reijonen, Olavi, 3,707,769.

Reilly, John F.: *See—*
Grant, Bernard Carrington; and Reilly, John F., 3,708,367.

Reinhart, Donald R.; and Fritts, Russell A., to Conchemco, Incorporated, mesne. Metallic paint. 3,708,318, Cl. 106-193.00m.

Republic Steel Corporation: *See—*
Perry, Thomas E., 3,708,158.

Research Corporation: *See—*
Cosper, Dale L., 3,707,962.

Research Frontiers, Inc.: *See—*
Forlini, Matthew; Lowell, Francis C.; and Saxe, Robert L., 3,708,219.

Rewick, Robert T.: *See—*
Tolberg, Wesley E.; Stringham, Roger S.; and Rewick, Robert T., 3,708,570.

Reynolds, Donald S.: *See—*
Krueger, Harvey R.; and Reynolds, Donald S., 3,708,637.

Rhee, Dong Woo, to GTE Sylvania Incorporated. Convergence apparatus utilizing independently adjustable half-period triangular waveforms. 3,708,715, Cl. 315-13.00c.

Rheinmetall GmbH: *See—*
Hornfeck, Josef; and Rauch, Klausheinz, 3,707,900.

Rhoades, Warren A., Jr.; and Fleischer, Danville Alfred R., to De Laval Turbine California, Inc. Ignition timing controller for an engine. 3,707,953, Cl. 123-117.00r.

Rhone-Poulenc S.A.: *See—*
Brunie, Jean-Claude; and Crenne, Noel, 3,708,506.

Richards, Daniel E. Combination house trailer and airplane hangar. 3,708,200, Cl. 296-23.00r.

Richens, Kenneth A.; Grover, Scott C.; Allred, James K.; and Shook, James H., to Eaton Yale & Towne, Inc. Drive means for a vehicle in a warehousing apparatus. 3,708,077, Cl. 214-16.40a.

Rieber, Martin: *See—*
Loffler, Wilhelm; and Rieber, Martin, 3,708,328.

Riedel, Guenther: *See—*
Andree, Franz; Burkhardt, Hans; and Riedel, Guenther, 3,708,499.

Rieter Machine Works, Ltd.: *See—*
Staheli, Paul; and Wildbolz, Rudolf, 3,708,210.

Riker Laboratories, Inc., mesne: *See—*
Harrington, Joseph K.; Kvam, Donald C.; Mendel, Arthur; and Robertson, Jerry E., 3,708,491.

Rinke, Heinrich: *See—*
Thoma, Wilhelm; Oertel, Harald; and Rinke, Heinrich, 3,708,453.

Riordan, Hugh E.; Every, Peter; and Hill, Frank E., to Kelsey-Hayes Company. Skid control valve assembly. 3,708,214, Cl. 303-21.00f.

Ripley, Robert L.: *See—*
Hard, Robert A.; and Ripley, Robert L., 3,708,206.

Rippie, Charles W. Process to remove mercaptan sulfur from sour oils. 3,708,421, Cl. 208-244.00r.

Rising, Bradley D.: *See—*
Huboi, Robert W.; Palmer, Osmond F.; and Rising, Bradley D., 3,708,676.

Ritter, Gerhard: *See—*
Ritter, Klaus; Gott, Hans; Ritter, Josef; and Ritter, Gerhard, 3,708,646.

Ritter, Josef: *See—*
Ritter, Klaus; Gott, Hans; Ritter, Josef; and Ritter, Gerhard, 3,708,646.

Ritter, Klaus; Gott, Hans; Ritter, Josef; and Ritter, Gerhard, to EVG Entwicklungs- und Verwertungsgesellschaft m.b.H. Electric resistance welding machine. 3,708,646, Cl. 219-56.000.

Roberts, Donald L., to Goodyear Tire & Rubber Company, The. Pneumatic tire including belt cables. 3,708,007, Cl. 152-361.000.

Roberts, Harry W., to Pylon Manufacturing Corporation. Windshield wiper. 3,707,741, Cl. 15-250.420.

Roberts, John A.: *See—*
Bateman, Glenn; and Roberts, John A., 3,708,749.

Robertson, Jerry E.: *See—*
Harrington, Joseph K.; Kvam, Donald C.; Mendel, Arthur; and Robertson, Jerry E., 3,708,491.

Robeson, Lloyd Mahlon: *See—*
Barlow, Joel William; Azrak, Raymond George; and Robeson, Lloyd Mahlon, 3,708,454.

Robinson, Thomas Charles: *See—*
Kitrilakis, Sotiris; and Robinson, Thomas Charles, 3,707,967.

Rocha, John G.; and Livingston, Richard W., to United States of America, Army. Concealed single shot firing mechanism. 3,707,794, Cl. 42-1.00j.

Rochester Corporation, The: *See—*
Lovett, Stanley L., Jr., 3,707,836.

Roderick , William Rodney, to Abbott Laboratories. Anti-inflammatories. 3,708,581, Cl. 424-203.000.

Roebelen, George J., Jr.; and Fitzsimmons, Thomas E., to United Aircraft Corporation. In-line replacement tool. 3,707,757, Cl. 29-213.000.

Roeder & Spengler OHG: *See—*
Spengler, Ernst Maximilian, 3,707,768.

Roessl, Julius. Dwelling. 3,707,812, Cl. 52-27.000.

Rogers Corporation: *See—*
Iosue, Michael F.; and Lernould, Andre A., 3,708,609.

Rogers, Raymond W.: *See—*
Wilson, Robert G.; and Rogers, Raymond W., 3,707,907.

Rogers, Robert C.: *See—*
Bell, Cecil R.; Swaim, Jessie E.; Gilgo, Horace Paul; Rogers, Robert C.; Sizemore, Walter Ray; and Orr, Samuel M., Jr., 3,707,825.

Rohleder, Penelope C.: *See—*
Johnson, George E.; and Rohleder, Penelope C., 3,708,309.

Rohm & Haas Company: *See—*
Bayer, Horst O.; and Hurt, William S., 3,708,591.

Rohm & Haas G.m.b.H.: *See—*
Ganzler, Wolfgang; Schroder, Gunter; and Huch, Peter, 3,708,444.

Rohr, Wolfgang; Koenig, Karl-Heinz; and Fischer, Adolf, to Badische Anilin- & Soda Fabrik Aktiengesellschaft. S-alkyl-(methylhexahydro-1H-azepine)-1-carbothiolates. 3,708,471, Cl. 260-239.0bf.

Roller Gear Ltd.: *See—*
Schottler, Henry, 3,707,888.

Rolls-Royce Limited: *See—*
Dawson, Lindsay Grahame; Petrie, James Alexander; and Bracey, Kenneth Edward George, 3,708,244.

Rombusch, Konrad; and Magosch, Karl-Heinz, to Chemische Werke Huls Aktiengesellschaft. Antistatic olefin polymer compositions. 3,708,464, Cl. 260-93.700.

Roquier-Vicat, Camille, to Imhanda A/G. Non-metallic strap jointing apparatus, especially for heat sealing straps. 3,708,373, Cl. 156-380.000.

Roscher, Georg: *See—*
Lindner, Heinz; and Roscher, Georg, 3,707,853.

Rose, Down & Thompson Limited: *See—*
Alexander, David George; Lloyd, Anthony Michael; Greensides, Geoffrey Charles; and Thompson, David Harry, 3,708,512.

Rose, James S.: *See—*
Alberino, Louis M.; Farrissey, William J., Jr.; and Rose, James S., 3,708,458.

Roselli, Frank F.: *See—*
Toggweiler, Ulrich; and Roselli, Frank F., 3,708,443.

Rosenberger, Michael; and Saucy, Gabriel, to Hoffmann-La Roche Inc. Aryl ketals of polycyclic oxo compounds and processes. 3,708,500, Cl. 260-340.500.

Rosenburg, Charles W., Jr., to Burt, F. N., Company, Inc. Flip top carton. 3,708,108, Cl. 229-44.0cb.

Rosenburgh, Charles W., Jr., to Burt, F. N., Company, Inc. Easy open carton with reclosure feature. 3,708,109, Cl. 229-51.0tc.

Ross, Eric D.: *See—*
Mitton, Robert E., 3,707,845.

Ross, Keith, to Davy and United Engineering Company, Limited. Casting mold. 3,708,147, Cl. 249-99.000.

Rothermel, Heinz. Adjustable back rest support for chairs. 3,708,205, Cl. 297-355.000.

Roussel-UCLAF: *See—*
Martel, Jacques; and Heymes, Rene, 3,708,477.
Nedelec, Lucien; and Gasc, Jean-Claude, 3,708,474.

Rowan, Donald James; Rowan, Kenneth Lorne; and Rowan, Larry James. Truck hoist cradle. 3,708,197, Cl. 294-67.00e.

Rowan, Kenneth Lorne: *See—*
Rowan, Donald James; Rowan, Kenneth Lorne; and Rowan, Larry James, 3,708,197.

Rowan, Larry James: *See—*
Rowan, Donald James; Rowan, Kenneth Lorne; and Rowan, Larry James, 3,708,197.

Rowe, Jean Max, to Du Pont de Nemours, E. I., and Company. Electric motor braking apparatus. 3,708,734, Cl. 318-212.000.

Rowell, Douglas Whitman, to Anaconda American Brass Company. Method and apparatus for measuring and controlling the continuous annealing of a long length of metal tubing. 3,708,354, Cl. 148-128.000.

Roznovsky, Walter, to Waagner-Biro AG. Assembly for plugging heat exchanger tubes. 3,708,098, Cl. 228-15.000.

Rubinstein, Solomon. Electrical switch for prefabricated wiring harnesses. 3,708,641, Cl. 200-168.00e.

Rucker, Dietrich; Bossert, Friedrich; Meyer, Horst; and Vater, Wulf, to Farbenfabriken Bayer Aktiengesellschaft. Azido-aryl 1,4-dihydropyridines and their production. 3,708,489, Cl. 260-295.50r.

Rudy, Erwin, to Teledyne Industries, Inc. Castable carbonitride alloys. 3,708,355, Cl. 148-32.000.

Ruegsegger, Walter. Furnace for the combustion of solids. 3,707,931, Cl. 110-8.00c.

Ruehle, Robert A. Self adjusting bridge circuit with negative feedback. 3,708,755, Cl. 330-28.000.

Ruehlen, Forrest N.; and Fox, Homer M., to Phillips Petroleum Company. Multiporosity electrode for electrochemical conversion. 3,708,416, Cl. 204-284.000.

Rupp, Walter; and Beermann, Claus, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Process for the manufacture of poly-β-amides. 3,708,460, Cl. 260-78.001.

Ruppel, Kurt: *See—*
Tucker, James I., Jr.; Bales, Joseph H.; Bosley, Denis V.; Prodger, Brian S.; Ruppel, Kurt; and Summerfield, William F., 3,707,802.

Russo, Giovanni: *See—*
Savarese, Giuseppe; Campellone, Giuseppe; De Luccia, Bruno; and Russo, Giovanni, 3,708,757.

Rutgerswerke Aktiengesellschaft: *See—*
Franck, Heinz-Gerhard; Metzendord, Walter; Turowski, Johannes; Omran, Jaafar; and Nijssen, Jozef H. G., 3,708,442.

Ruth, Kenneth. Recoil absorber. 3,707,797, Cl. 42-74.000.

Ryan, Edward Clyde, to Deere & Company. Split-lift cultivator. 3,708,019, Cl. 172-470.000.

Rychkov, Vladimir Leonidovich: *See—*
Smirnov, Boris Andreevich; Axenova, Emilia Ivanovna; Rychkov, Vladimir Leonidovich; and Lukichev, Nikolai Dmitrievich, 3,707,970.

S&S Corrugated Paper Machinery Co., Inc.: *See—*
Volkers, Hank, 3,707,909.

S.A. Automobiles Citroen: *See—*
Grosseau, Albert, 3,707,810.

Sadler, Harry J.; Pareja, Ramon; and Leschisin, John, to Lear Siegler, Inc. Compensating unloader valve. 3,707,981, Cl. 137-115.000.

Saiki, Noritsugu: *See—*
Ishimoto, Sachio; Togawa, Haruo; Honda, Yuitsu; and Saiki, Noritsugu, 3,708,534.

Salamon, Wolfgang; and Lother, Rolf, to Vereinigte Flugtedinische Werke Fokker GmbH. Function generator for providing pulse width modulation. 3,708,765, Cl. 332-9.00r.

Salesin, Eugene D., to Eastman Kodak Company. Photographic elements and processes lithographic silver halide element containing a 1-(amidophenyl)-5-mercaptotetrazole sensitizing agent and development process of using same. 3,708,303, Cl. 96-107.000.

Salway-Waller, Malcolm, to USM Corporation. Temperature controls. 3,708,652, Cl. 219-505.000.

Sanchez, Moises G.: *See—*
Triggiani, Leonard V.; Haberman, Norton; and Sanchez, Moises G., 3,708,432.

Sanders Nuclear Corporation: *See—*
Mayo, Kenneth E.; and Fitzgearld, Joseph J., 3,708,268.

Sanderson Cyclone Drill Company, The: *See—*
Back, Carl F., 3,708,024.

Sandoz, Inc.: *See—*
Griot, Rudolf G., 3,708,598.

Sandoz Ltd.: *See—*
Hahn, Rasso; and Mueller, Curt, 3,708,468.

Sandoz-Wander, Inc.: *See—*
Anderson, Paul L.; Houlihan, William J.; and Manning, Robert E., 3,708,484.
Galantay, Eugene E., 3,708,541.

Sandri, Joseph M.: *See—*
Thompson, Ralph B.; Pappas, Peter G.; and Sandri, Joseph M., 3,708,436.

Sandstede, Gerd: *See—*
Binder, Horst; Kuhn, Wolfgang H.; Lindner, Werner; and Sandstede, Gerd, 3,708,342.

Sanford, Mable M. Incontinence device. 3,707,969, Cl. 128-287.000.

Sankyo Company Limited: *See—*
Ando, Kazuhiko; Omino, Teiji; and Imamura, Kennosuke, 3,708,557.
Murayama, Keisuke; Morimura, Syoji; Higashida, Susumu; Matsui, Katsuaki; Kurumada, Tomoyuki; and Onta, Noriyuki, 3,708,488.

Sano, Reiji: *See—*
Yoshimura, Susumu; and Sano, Reiji, 3,708,424.

Sardinas, Joseph L., to Pfizer Inc. Fermentation process for the production of citrus acid. 3,708,398, Cl. 195-37.000.

Sardinas, Joseph L., to Pfizer Inc. Fermentation process for the production of citric acid. 3,708,399, Cl. 195-47.000.

Sargent, Cassius E., to PPC Industries, Inc. Bag structure and method of producing. 3,708,106, Cl. 229-62.000.

Sargent, Christian: *See—*
Collier, Franck; Dauchy, Jean-Daniel; Sargent, Christian; and Michon, Maurice, 3,708,759.

Sarkisov, Rafael Tevosovich: *See—*
Gilev, Vitaly Konstantinovich; Ovanesov, Jury Vagarshevich; Sarkisov, Rafael Tevosovich; and Stepanyan, Ernst Arakelovich, 3,708,054.
Gilev, Vitaly Konstantinovich; Popov, Vyacheslav Dmitrievich; Sarkisov, Rafael Tevosovich; and Stephanian, Ernst Arakelovich, 3,708,165.

Sasaki, Hiromu: *See—*
Matsuo, Yoshihiro; Sasaki, Hiromu; and Hayakawa, Shigeru, 3,708,315.

Sasaki, Hiroshi: *See—*
Karastu, Tetsuo; Sasaki, Hiroshi; and Fukuda, Hideo, 3,708,461.

Sasaki, Kunihiko: *See—*
Okamoto, Hiromu; Ohi, Takuo; Tamura, Jyotaro; Takahashi, Saburo; Oyama, Hiroshi; Ueda, Hideo; Sasaki, Kunihiko; and Ishikawa, Hiromichi, 3,708,278.

Saucy, Gabriel: *See—*
Rosenberger, Michael; and Saucy, Gabriel, 3,708,500.

Sauer, J. P., & Sohn GmbH: *See—*
Bielfeldt, Heinz, 3,707,795.
Bielfeldt, Heinz, 3,707,796.

Savarese, Giuseppe; Campellone, Giuseppe; De Luccia, Bruno; and Russo, Giovanni, to General Instrument Corporation. Oscillator loop including two double valved MOSFET delay networks. 3,708,757, Cl. 331-57.000.

Saxe, Robert L.: *See—*
Forlini, Matthew; Lowell, Francis C.; ard Saxe, Robert L., 3,708,219.

Saxon, James B.; and Dunn, Jackei J., Sr., to Anderson Electric Corporation. Electrical bushing assembly. 3,708,612, Cl. 174-142.000.

Sayigh, Adnan A. R.: *See—*
Frulla, Floro F.; Odinak, Alec; and Sayigh, Adnan A. R., 3,708,440.

Sayigh, Adnan A. R.; Tucker, Benjamin W.; and Ulrich, Henri, to Upjohn Company, The. Polybenzimidazoles. 3,708,439, Cl. 260-2.00r.

Scarsella, Lydia, to Zim-Stra Originals, Inc. Garment construction. 3,707,729, Cl. 2-88.000.

Schade, Gustav, Maschinenfabrik: *See—*
Strocker, Gunter, 3,708,056.

Schaefer, Howard A., to Anchor Hocking Corporation. Aspheric lens and method of manufacture. 3,708,221, Cl. 350-189.000.

Schafer, Lutz: *See—*
Burckhardt, Manfred H.; and Schafer, Lutz, 3,707,852.

Schaible, Aaron M.; deceased (by Bremer, James F.; special administrator); Braun, Bernard G.; Bennett, Wilbur G.; and Brown, Richard L., to Case, J. I., Company. Concrete placement apparatus. 3,707,990, Cl. 137-615.000.

Schanne, Joseph Francis, to RCA Corporation. Article identification apparatus. 3,708,655, Cl. 235-61.11e.

Scheer, John E.: *See—*
Turner, Derek T.; and Scheer, John E., 3,708,387.

Schellenbaum, Max: *See—*
Duennenberger, Max; Schellenbaum, Max; and Casagrande, Fulvio, 3,708,527.

Schenkochikhin, Serafim Vasilievich: *See—*
Kononenko, Vadim Grigorievich; Yatsenko, Vasilievich; Komnatny, Igor Pavlovich; Schenkochikhin, Serafim Vasilievich; Stelmakh, Viktor Alexeevich; Mazichenko, Stanislav Anisimovich; and Kudryavtsev, Valentin Semenovich, 3,707,896.

Schepler, Kent L.; and Schmersal, Larry J., to Owens-Illinois, Inc. Method and apparatus for inspecting dielectric members. 3,708,064, Cl. 209-73.000.

Scherer, Otto: *See—*
Hahn, Helmut; Scherer, Otto; and Rebsdat, Siegfried, 3,708,538.

Schering A.G.: *See—*
Vorbruggen, Helmut; and Strehlke, Peter, 3,708,469.

Schertz, Eugene P.; and Troisi, George A., to Dunkin' Donuts Incorporated. Doughnut and shell making. 3,708,255, Cl. 425-287.000.

Scheyer, Gerard, to Adamas Carbide Corporation. Apparatus for and method of de-waxing, presintering and sintering powdered metal compacts. 3,708,285, Cl. 75-221.000.

Schierl, Hans: *See—*
Brunnert, Otto; and Schierl, Hans, 3,708,702.

Schierz, Winfried; and Vladik, Liboslav, to Semikron Gesellschaft fur Gleichrichterbau und Elektronik m.b.H. Contact structure for multiple wafer semiconductor rectifier arrangement. 3,708,730, Cl. 317-234.00r.

Schildmeier, John Henry. Tire loading and trueing apparatus. 3,708,008, Cl. 157-13.000.

Schirmer, Gunter; and Fauser, Edwin, to Bosch, Robert, G.m.b.H. Function generator. 3,708,659, Cl. 235-197.000.

Schladenhauffen, Paul C. Boat loading apparatus. 3,708,081, Cl. 214-450.000.

Schladetsch, Hans Jakob: *See—*
Happe, Wilhelm; and Schladetsch, Hans Jakob, 3,708,596.

Schlage Lock Company: *See—*
Hegedus, Denes, 3,708,191.

Schlagel, Samuel: *See—*
Fahey, Thomas D.; and Schlagel, Samuel, 3,708,074.

Schlei, Alvin O. Ladder bracket. 3,708,080, Cl. 182-214.000.

Schlesinger, Sheldon Irwin, to American Can Company. Photopolymerization of opoxy monomers. 3,708,296, Cl. 96-33.000.

Schletz, Howard D. Collapsible self-storing stand. 3,708,143, Cl. 248-165.000.

Schlimme, Ewald, to Bosch, Robert, G.m.b.H. Electronic control system for internal combustion engine. 3,707,950, Cl. 123-32.0ea.

Schloemann Aktiengesellschaft: *See—*
Simons, Willi, 3,708,010.

Schmersal, Larry J.: *See—*
Schepler, Kent L.; and Schmersal, Larry J., 3,708,064.

Schmidgall, Phillip L., to Mallory, P. R., & Co., Inc. Control means for an inductance means. 3,707,776, Cl. 34-45.000.

Schmidt, Henry, Jr., to Industrial Filter & Pump Mfg., Co. Method and apparatus for controlling filter cake thickness and for compressing a filter cake. 3,708,072, Cl. 210-332.000.

Schmidt, Jude P.: *See—*
Caraba, Jerome R.; and Schmidt, Jude P., 3,708,617.

Schmitt, Edward A.: *See—*

Schmitt, Robert F.; and Schmitt, Edward A., 3,707,817.
Schmitt, Robert F.; and Schmitt, Edward A. Building construction. 3,707,817, Cl. 52-221.000.
Schneider, Gerard: *See—*
Berthoux, Jean; Schneider, Gerard; and Surville, Renaud de, 3,708,523.
Schnellman, Oscar; and Stier, Henry Willy, to Carmet Company. Automatic profile grinding machine with an indexing mechanism. 3,707,809, Cl. 51-215.00h.
Schoenberg, Leonard Norman, to Bell Telephone Laboratories, Incorporated. Electroless copper plating. 3,708,329, Cl. 117-47.00r.
Schokbeton Products Corporation: *See—*
Van Wuyckuyse, Hendrik Johan, 3,707,816.
Schonthal, David. Newspaper dispenser. 3,708,087, Cl. 221-110.000.
Schottel of America, Inc.: *See—*
Berg, John A., 3,707,939.
Schottler, Henry, to Roller Gear Ltd. Variable speed transmission. 3,707,888, Cl. 74-796.000.
Schrader, Karlheinz, to Dragoco Spezialfabrik Konz. Riech- und Aroma-stoffe Gerberding & Co., G.m.b.H. Hair cosmetic preparation. 3,708,426, Cl. 252-90.000.
Schreckenberg, Karl; Klein, Louis; and Read, Lorenzo Antonio, to Fuchs Electrical Industries (Proprietary) Limited. Overload protection for electric motors. 3,708,771, Cl. 335-176.000.
Schreyer, Gerd: *See—*
Kleemann, Axel; Kruger, Manfred; Schreyer, Gerd; Weiberg, Otto; and Weigert, Wolfgang, 3,708,507.
Schroder, Gunter: *See—*
Ganzler, Wolfgang; Schroder, Gunter; and Huch, Peter, 3,708,444.
Schuler, L., GmbH: *See—*
Merk, Lothar; Michael, Wolfgang; and Munch, Werner, 3,707,908.
Schulin, Gotthilf, to Wacker Werke KG. Method and apparatus for clamping planks, boards, poles, pipes, and the like, to pile drivers and pulling devices. 3,708,151, Cl. 254-133.000.
Schulz, Wallace W., to United States of America, Atomic Energy Commission. Method for the purification and recovery of tributyl phosphate used in reprocessing nuclear. 3,708,508, Cl. 252-364.000.
Schulze, John J.: *See—*
Lux, George K.; Ellis, James B.; and Schulze, John J., 3,708,161.
Schulze, Peter: *See—*
Hoffmann, Manfred; Fork, Kurt; and Schulze, Peter, 3,708,718.
Schumacher, Ernst, to Ciba-Geigy AG. Process for the manufacture of metallic, electrically conductive patterns. 3,708,295, Cl. 96-36.200.
Schumacher, Gunter: *See—*
Schumacher, Gustav, II; and Schumacher, Gunter, 3,707,834.
Schumacher, Gustav, II; and Schumacher, Gunter. Height control device for a harvester cutter. 3,707,834, Cl. 56-208.000.
Schwab, Dittmar; and Schwab, Heinz, to Ymos-Metallwerke Wolf & Becker GmbH & Co. Cylinder lock. 3,707,863, Cl. 70-364.00r.
Schwab, Heinz: *See—*
Schwab, Dittmar; and Schwab, Heinz, 3,707,863.
Schwandt, Horst: *See—*
Hecht, Horstmar; and Schwandt, Horst, 3,708,276.
Schwank, Otto: *See—*
Buchfuhrer, Gerhard; Dudszus, Alfred; Milles, Wilhelm; Lerche, Franz; Feyer, Gunter; Krause, Manfred; Grunwald, Josef; Hensel, Ulrich; Aust, Ingo; Ewald, Gunter; Langer, Walter; Ludke, Gunther; Mohle, Karl-Georg; Oberlander, Joachim; Kowalski, Horst; Gatzk, Eckard; Pernaux, Gerd; Schwank, Otto; Leschnewski, Konrad; Brose, Reinhard; Hartwig, Gunter; and Ploetz, Ulrich, 3,708,100.
Schwartz, Robert A.D. Interconnecting means for modular closed louver panel system. 3,708,381, Cl. 161-44.000.
Schwartz, Stephan Lars: *See—*
Unger, Hans Peter Olof; Westberg, Johan Eric Hayden; Berndtsson, Gunnar Ingemar; and Schwartz, Stephan Lars, 3,708,110.
Schwarzmaier, Gerhard: *See—*
Geyken, Erwin; Krauss, Siegfried; Kocourek, Franz; Koninger, Horst; and Schwarzmaier, Gerhard, 3,707,777.
Schweitzer, E. D., Manufacturing Co., Inc.: *See—*
Schweitzer, Edmund O., Jr., 3,708,724.
Schweitzer, Edmund O., Jr., to Schweitzer, E. D., Manufacturing Co., Inc. Signalling system responsive to fault on electric power line. 3,708,724, Cl. 317-22.000.
Schweizerische Aluminium AG: *See—*
Limpinsel, Gunter; and Fricker, Karl, 3,708,128.
Schwertfeger, Owen J., to Seeburg Corporation, The. Intake and exhaust system for automatic coffee brewer. 3,707,905, Cl. 99-289.000.
Scientific Glass Blowing Company: *See—*
Muller, Charles B.; and Jones, Fred C., 3,707,832.
Scionics Corporation, The: *See—*
Newman, Frederick S.; Thorne, John R.; and Hartman, John T., 3,708,407.
Scoats, Horace William: *See—*
Bolton, Andrew; Philpott, Peter John; and Scoats, Horace William, 3,708,311.
Scovill Manufacturing Company: *See—*
First, Philip E., 3,708,629.
Searle Medidate Inc.: *See—*
Rawson, Edward B.; and Fergusin, Joseph B., 3,708,785.
Secretary of State for Defence, mesne: *See—*
Meleka, Abdou Hanna; and Proops, William Alfred, 3,707,754.
Sedgfield, Hugh B.; Brown, Norman Kenneth; and Birchnall, Eric James, to Sperry Rand Limited. System for guiding vehicles. 3,708,029, Cl. 180-79.000.
Seeburg Corporation, The: *See—*
Schwertfeger, Owen J., 3,707,905.
Seegers, Glen A., to American Stair Corporation. Pre-fabricated stairway. 3,707,814, Cl. 52-185.000.
Seelinger, William E.: *See—*
Sherrick, George T.; and Seelinger, William E., 3,707,940.
Seibold, Paul F. Golf club carrier. 3,708,004, Cl. 150-1.50b.
Seiffert, Karlheinz. Process for the production of fibers from thermoplastic synthetic material. 3,708,565, Cl. 264-88.000.
Sekigawa, Fujio: *See—*
Koyanagi, Shunichi; Ogawa, Kinya; Sekigawa, Fujio; Suzuki, Hiroshi; and Ono, Shigeru, 3,708,305.
Sells Incorporated: *See—*
Sells, Peter A., 3,708,563.
Sells, Peter A., to Sells Incorporated. Magazine for aerial dispenser and method of making same. 3,708,563, Cl. 264-45.000.
Semikron Gesellschaft fur Gleichrichterbau und Elektronik m.b.H.: *See—*
Schierz, Winfried; and Vladik, Liboslav, 3,708,730.
Senkingwerk GmbH Kommanditgesellschaft: *See—*
Gulzow, Fritz; and Hartmann, Egon, 3,707,858.
Senoo, Saburo; Kato, Toshio; and Kimura, Hiroshi, to Asahi Kasei Kogyo Kabushiki Kaisha. Process for the preparation of an anhydrous alkali metal salt of a p-hydroxybenzoic acid ester. 3,708,519, Cl. 260-473.00s.
Senour, Donald A., to BLH Electronics, Inc. Digital batching. 3,708,026, Cl. 177-60.000.
Serratto, Angelo. Local air conditioning apparatus. 3,708,011, Cl. 165-22.000.
Service Business Forms, Inc.: *See—*
Wolfberg, Larry B.; and Harper, John, 3,707,773.
Servo Corporation of America, mesne: *See—*
Kreda, Eugene J., 3,708,678.
Severin, Hans Peter: *See—*
Nickel, Ernst Gunter; Severin, Hans Peter; and Frye, Helmut, 3,708,600.
Sewell, Brian C.: *See—*
Starr, Arthur T.; Sewell, Brian C.; and Lewis, Roy F., 3,708,751.
Sha, Richard T.; and Tang, Donald T., to International Business Machines Corporation. Automatic equalizer and method of operation therefor. 3,708,766, Cl. 333-18.000.
Shader, Benjamin A., to Eversman Mfg. Company, The. Leaf lifters for photoelectric plant thinners. 3,708,016, Cl. 172-6.000.
Shahid, John M.: *See—*
McCullough, Harry J.; Shahid, John M.; and Boyd, Aland, 3,708,254.
Shand, John R.; and Reid, William H., to Airpax Electronics Incorporated. Low power magnetic circuit breaker. 3,708,723, Cl. 317-31.000.
Shapiro, Eugene B.: *See—*
Gore, William C.; and Shapiro, Eugene B., 3,707,733.
Shapiro, Jonas M. Remote controlled valve for irrigation systems. 3,707,991, Cl. 137-625.110.
Shattes, Walter J.; Marancik, William G.; and Kirk, Bradley S., to Air Reduction Company, Incorporated. Cryogenic system including variations of hollow superconducting wire. 3,708,606, Cl. 174-15.00c.
Shaw, Richard H., to United Aircraft Corporation. Method of making an electrode for electrochemical milling. 3,708,404, Cl. 204-16.000.
Sheeler, Phillip; and Wells, John R. Apparatus and method for gradient zonal centrifugation. 3,708,111, Cl. 233-32.000.
Shel, Marat Moiseevich: *See—*
Korolev, Evgeny Mikhailovich; Shel, Marat Moiseevich; and Likuchev, Vladimir Grigorievich, 3,708,644.
Sheldon, E. H., and Company: *See—*
Morrison, Robert B.; and Wyman, Lewis C., 3,708,709.
Shell Oil Company: *See—*
Dautzenberg, Frits M.; Naber, Jaap E.; and Verwey, Cornelis W. J., 3,707,831.
Sherrick, George T.; and Seelinger, William E. Safety alarm assembly for swimming pools and the like. 3,707,940, Cl. 116-67.000.
Sherwood Medical Industries Inc.: *See—*
Koenig, Elmer A., 3,707,968.
Shibanuma, Tadao: *See—*
Murakami, Masuo; Isaka, Ichiro; Kawahara, Norio; Kashiwagi, Teruya; Shibanuma, Tadao; and Shiozaki, Tetsuya, 3,708,514.
Shigihara, Takeji: *See—*
Tashiro, Kenichi; Furuto, Yoshio; Shigihara, Takeji; Ikawa, Kazuo; and Okano, Yukimitsu, 3,708,675.
Shimamura, Isao; Iijima, Yoo; and Iwano, Haruhiko, to Fuji Photo Film Co., Ltd. Photographic developing method. 3,708,299, Cl. 96-66.300.
Shinetsu Chemical Company: *See—*
Koyanagi, Shunichi; Ogawa, Kinya; Sekigawa, Fujio; Suzuki, Hiroshi; and Ono, Shigeru, 3,708,305.
Shiozaki, Tetsuya: *See—*
Murakami, Masuo; Isaka, Ichiro; Kawahara, Norio; Kashiwagi, Teruya; Shibanuma, Tadao; and Shiozaki, Tetsuya, 3,708,514.
Shook, James H.: *See—*
Richens, Kenneth A.; Grover, Scott C.; Allred, James K.; and Shook, James H., 3,708,077.

Short, Oliver A., to Du Pont de Nemours, E. I., and Company. Metalizing compositions. 3,708,313, Cl. 106-1.000.

Shumaker, Murray Byron: *See—*
Brown, Robert H.; Brown, Melvin H.; and Shumaker, Murray Byron, 3,708,352.

Sieburg Industries Incorporated: *See—*
Citrin, Paul Stuart, 3,707,760.

Siegel, Harris T., to Eastman Kodak Company. Apparatus for injecting dry solid particles into a liquid including noise muffling means. 3,707,829, Cl. 55-239.000.

Siemens Aktiengesellschaft: *See—*
Brunnert, Otto; and Schierl, Hans, 3,708,702.
Hoffmann, Manfred; Fork, Kurt; and Schulze, Peter, 3,708,718.
Le Franc, Guy J., 3,708,772.
Lutz, Karl Anton, 3,708,626.
Paul, Bernt, 3,708,763.

Sifniades, Stylianos: *See—*
Fuhrmann, Robert; Pisanchyn, John; and Sifniades, Stylianos, 3,708,595.

Sigler, Alan D.: *See—*
Winstrom, Willis L.; Engel, John T.; Sigler, Alan D.; and Thomas, George David, 3,708,583.

Siliconix Incorporated: *See—*
Evans, Arthur D., 3,708,694.

Simon, Pierre; Bernstein, Jack; and Krapcho, John, to Squibb, E. R., & Sons, Inc. Method of administering central nervous system active compounds. 3,708,586, Cl. 424-309.000.

Simons, Willi, to Schloemann Aktiengesellschaft. Apparatus for the continuous casting of tubes. 3,708,010, Cl. 164-273.00r.

Simshauser, Anthony J.: *See—*
Meraz, Daniel, Jr.; Simshauser, Anthony J.; Yeakey, Jack A.; and Carpenter, David W., 3,707,916.

Singer Company, The: *See—*
Davis, William M., Jr.; and Windya, Richard A., 3,708,695.

Singer, M. Leonard; and Woletz, Robert M. Device for locking articles to a mounting base. 3,707,860, Cl. 70-58.000.

Sioberg, Charles M.: *See—*
Calhoun, William D.; Hemsley, William T.; and Sioberg, Charles M., 3,707,819.

Sipos, Tibor, to Baxter Laboratories, Inc. Syrup conversion with immobilized glucose isomerase. 3,708,397, Cl. 195-31.00r.

Sitomer, Alvin L.: *See—*
Kunik, I. Jordan; and Sitomer, Alvin L., 3,708,171.

Siwko, Karol, to GTE Sylvania Incorporated. Bandpass amplifier. 3,708,620, Cl. 178-7.30r.

Six, Hugh A.: *See—*
Brach, Paul J.; and Six, Hugh A., 3,708,292.

Sizemore, Walter Ray: *See—*
Bell, Cecil R.; Swaim, Jessie E.; Gilgo, Horace Paul; Rogers, Robert C.; Sizemore, Walter Ray; and Orr, Samuel M., Jr., 3,707,825.

Skalatsky, Viktor Klimentievich: *See—*
Glushko, Mikhail Fedorovich; Skalatsky, Viktor Klimentievich; and Skripnik, Ivan Timofeevich, 3,707,839.

Skinner Precision Industries, Inc.: *See—*
Ellison, John E.; and Flink, Herbert M., 3,707,992.

Skoyles, Derek Robert, to U.S. Philips Corporation. Anti-lock brake systems. 3,708,213, Cl. 303-21.0af.

Skripnik, Ivan Timofeevich: *See—*
Glushko, Mikhail Fedorovich; Skalatsky, Viktor Klimentievich; and Skripnik, Ivan Timofeevich, 3,707,839.

Skudlarek, Walter R., to Owens-Illinois, Inc. Stream flow interrupter. 3,708,162, Cl. 271-47.000.

Slanhoff, Bertram. Book cover-easel combination. 3,708,184, Cl. 281-33.000.

Sleggs, Alton C.; and Miller, William A., to Carborundum Company, The. Coating fused cast blocks with refactory paper to prevent spalling in hot repairs. 3,708,562, Cl. 264-30.000.

Slider, Gordon R. Basketball practice glove. 3,707,730, Cl. 2-161.00a.

Slijkerman, Petrus Nicolaas: *See—*
Esveldt, Cornelis Jacobus; and Slijkerman, Petrus Nicolaas, 3,708,423.

Small, William M., to Phillips Petroleum Company. Tube supports. 3,708,142, Cl. 248-49.000.

Smillie, Charles M., III. Water heated mirror for condensation control. 3,708,218, Cl. 350-61.000.

Smillie, George Horn; and Johnstone, Frank, to Tronicair International Limited. Electrical heating apparatus. 3,708,650, Cl. 219-364.000.

Smirnov, Boris Andreevich; Axenova, Emilia Ivanovna; Rychkov, Vladimir Leonidovich; and Lukichev, Nikolai Dmitrievich, to Vsesojuzny Nauchno-Issledovatelsky Institut Khirurgicheskoi Apparatury i Instrumentov. Surgical instrument for hysterectomy. 3,707,970 Cl. 128-305.000.

Smith, Afred H., Jr.; and Beers, Melvin D., to General Electric Company. Curable compositions. 3,708,467, Cl. 260-185.000.

Smith Kline & French Laboratories: *See—*
McGusty, Elizabeth R.; and Sutton, Blaine M., 3,708,579.

Smith, Marvin W.: *See—*
Kohler, Thomas P.; Smith, Marvin W.; and Van Marter, Charles W., 3,708,739.

Smith, Paul F.: *See—*
Cope, James R.; and Smith, Paul F., 3,708,136.

Smith, Peter; and Suzor, Herve, to Colonial Sugar Refining Company Limited, The. Continuous process for decolourizing liquors. 3,708,337, Cl. 127-46.00r.

Smyser, William E.; and Speros, Dimitrios M., to General Electric Company. Discharge lamp thermoionic cathode containing emission material. 3,708,710, Cl. 313-213.000.

Snell, James H. Pipe hooks. 3,708,196, Cl. 294-26.000.

Snow, Kenneth A.; and Vandewarker, Richard E., to Bausch & Lomb Incorporated. Laser pumping apparatus. 3,708,758, Cl. 331-94.500.

Sobchak, Frank L., to Stewart-Warner Corporation. Microswitch universally pivoted handle assembly with improved X-Y directional programming plate. 3,708,636, Cl. 200-6.00a.

Societa Italiana Telecomunicazioni Siemens S.p.A.: *See—*
Angeleri, Emanuele; Bonatti, Mario; Costa, Gianmario; and Boretti, Isidoro, 3,708,625.

Societe a Responsabilite Limitee dite: Etud: *See—*
Marrie, Paul, 3,707,906.

Societe Anonyme dite: Hexachimie (Hauts-de-Seine): *See—*
Offmann, Charles, 3,708,481.

Societe Anonyme dite: l'Oreal: *See—*
Kalopissis, Gregoire; and Vanlerberghe, Guy, 3,708,364.

Societe d'Etudes Scientifiques et Industrielles de l'Ile-de-France: *See—*
Kamiya, Takashi; and Hashimoto, Masashi, 3,708,497.

Societe Nationale d'Etude et de Construction de Moteurs d'Aviation: *See—*
Bruneau, Henri; Langner, Gerhard; and Tournere, Marcel Joseph, 3,708,242.

Soda, Yakio: *See—*
Akito, Eiichiro; Takagi, Toshitsugu; Soda, Yakio; and Ishibashi, Masataka, 3,708,594.

Soeda, Ken: *See—*
Endo, Ichiro; and Soeda, Ken, 3,708,294.

Softal Elektronik GmbH: *See—*
Bille, Holger Steen, 3,708,733.

Soler, Federico Martinez; and Gomez, Jacinto Salvado, to Mateo Grau e Hijos, SA. Method and apparatus for selecting objects to be formed into groups. 3,708,025, Cl. 177-1.000.

Solomon, Kenneth R.; Mletzko, Alfred E.; and Walker, Donald J., to Columbia Broadcasting System, Inc. Multi-channel laser recording system. 3,708,797, Cl. 346-108.000.

Sonetaka, Kazunori: *See—*
Nishino, Atsushi; Kumano, Hiroshi; Noguchi, Yoshinori; Sonetaka, Kazunori; and Amano, Yasuji, 3,708,408.

Sorensen, Ronald L.; and Dunn, Charlton, III, to North American Rockwell Corporation. Cooled mirrors. 3,708,223, Cl. 350-310.000.

Sotome, Hiromi, to Nippon Gakki Seizo Kabushiki Kaisha. Diaphragm for loudspeakers. 3,708,035, Cl. 181-32.00r.

Southern Pacific Transportation Company: *See—*
Speight, Wesley Y., 3,708,660.

Soxman, Edwin J., to Prudential Insurance Company of America, The. Treatment of light emitting films to extend their useful life. 3,708,708, Cl. 313-108.00a.

Spain, Robert J., to Compagnie Internationale Pour l'Informatique. Thin film binary data information stores. 3,708,789, Cl. 340-174.0bc.

Sparks, Charles H. Method of growing a graft member in a living body. 3,707,958, Cl. 128-1.00r.

Spati Industries, Inc.: *See—*
Tuttle, Wainwright, 3,707,874.

Spear, Karl E., II: *See—*
Leitnaker, James M.; and Spear, Karl E., II, 3,708,433.

Speed Fastener, Inc.: *See—*
Kissane, Richard W., 3,708,238.

Speight, Wesley Y., to Southern Pacific Transportation Company. Pneumatically-operated toggle yarn switch. 3,708,660, Cl. 246-393.000.

Spencer, William Meyer, to Bendix Corporation, The. Switch indicator module with single-wire control. 3,708,784, Cl. 340-147.000.

Spengler, Ernst Maximilian, to Roeder & Spengler OHG. Saw for machining a workpiece having a curved surface. 3,707,768, Cl. 30-166.000.

Speros, Dimitrios M.: *See—*
Smyser, William E.; and Speros, Dimitrios M., 3,708,710.

Sperry Rand Corporation: *See—*
McMahon, Donald H., 3,708,217.

Sperry Rand Limited: *See—*
Sedgfield, Hugh B.; Brown, Norman Kenneth; and Birchnall, Eric James, 3,708,029.

Spicer, Larry Dean; and Hand, John James. Imidazothiazolium compounds, preparation and method of use. 3,708,490, Cl. 260-306.800.

Spieles, Franklin E., to Hagan Manufacturing Company. Method for applying a metallic flake finish. 3,708,321, Cl. 117-17.000.

Spivack, John D.: *See—*
Dexter, Martin; Spivack, John D.; and Steinberg, David H., 3,708,520.

Spivak, David. Sandglass. 3,707,842, Cl. 58-144.000.

Squibb, E. R., & Sons, Inc.: *See—*
Diassi, Patrick A., 3,708,501.
Simon, Pierre; Bernstein, Jack; and Krapcho, John, 3,708,586.
Welch, Arnold D.; Dolfini, Joseph Edward; and Giarrusso, Frederick F., 3,708,479.

Squire, Edward Noonan, to Du Pont de Nemours, E. I., and Company. Process for the preparation of p-nitrophenol an metal salts thereof using ammonia to control the isomer distribution. 3,708,545, Cl. 260-622.00r.

Stafford, Cleo. Cushion insole for shoes. 3,707,784, Cl. 36-11.500.

Stage-Brite Inc.: *See—*
Grangaard, Orrin H.; and Peake, Ernest R., 3,708,743.

Staheli, Paul; and Wildbolz, Rudolf, to Rieter Machine Works, Ltd. Method and apparatus for separating opened fiber flocks from an air stream. 3,708,210, Cl. 302-59.000.

Stahle, Helmut; Koppe, Herbert; Kummer, Werner; and Wick, Helmut, to Boehringer Ingelheim G.m.b.H. 2-(N-allyl-phenylamino)-imidazolines-(2) and salts thereof. 3,708,485, Cl. 260-254.000.

Stahle, Martin. Means and method of regulating flow from centrifugal pumps. 3,708,239, Cl. 415-1.000.

Stallings, John P., to Diamond Shamrock Corporation. Process for preparing vinylidene fluoride polymers for coating applications. 3,708,463, Cl. 260-92.100.

Stamicarbon N.V.: *See—*
Thomas, Jozef A.; Klein, Joseph F. M.; and Geurts, Leonardus H., 3,708,515.

Standard Car Truck Company: *See—*
Geyer, Robert P.; and Gierlach, Robert W., 3,707,927.

Standard Oil Company: *See—*
Mayer, James F.; and Weisz, Robert G., 3,708,560.

Standard Tool & Manufacturing Co.: *See—*
Dato, Anthony L.; and Zilahy, Zoltan E., 3,708,051.

Stanford Research Institute: *See—*
Coon, Clifford L.; McDonald, Gerald J.; and Hill, Marion E., 3,708,546.
Tolberg, Wesley E.; Stringham, Roger S.; and Rewick, Robert T., 3,708,570.

Staniforth, Susan E.: *See—*
Chapman, John H.; and Staniforth, Susan E., 3,708,478.

Stanley Electric Co., Ltd.: *See—*
Tashiro, Kenichi; Furuto, Yoshio; Shigihara, Takeji; Ikawa, Kazuo; and Okano, Yukimitsu, 3,708,675.

Starkman, Jesse H. Method of cleaning human skin. 3,708,435, Cl. 252-544.000.

Starr, Arthur T.; Sewell, Brian C.; and Lewis, Roy F., to Xerox Corporation. Data transmission systems. 3,708,751, Cl. 325-38.00b.

Staub, Donald F.: *See—*
Kantarian, Edward T.; Bearde, John N.; and Staub, Donald F., 3,708,160.

Stauffer Chemical Company: *See—*
Gutman, Arnold D.; and Baker, Don R., 3,708,590.

Stebleton, Leo F., to Dow Corning Corporation. Method of growing silicone elastomer. 3,708,324, Cl. 117-47.00r.

Steel Storage Systems, Inc.: *See—*
Fahey, Thomas D.; and Schlagel, Samuel, 3,708,074.

Steele, James R., to Dynamic Air Inc. High pressure booster valve. 3,708,207, Cl. 302-24.000.

Steele, Thomas R.: *See—*
Hofmeister, Richard J.; Steele, Thomas R.; and Goetz, Frederick J., 3,708,618.

Steinberg, David H.: *See—*
Dexter, Martin; Spivack, John D.; and Steinberg, David H., 3,708,520.

Stelmakh, Viktor Alexeevich: *See—*
Kononenko, Vadim Grigorievich; Yatsenko, Vasilievich; Komnatny, Igor Pavlovich; Schenkochikhin, Serafim Vasilievich; Stelmakh, Viktor Alexeevich; Mazichenko, Stanislav Anisimovich; and Kudryavtsev, Valentin Semenovich, 3,707,896.

Stepan Chemical Company: *See—*
Wechsler, Joseph R., 3,708,513.

Stepanov, Gleb Alexandrovich; Chernyakov, Semen Semenovich; and Karchmar, Tsetsiliya Aronovna. Glass. 3,708,316, Cl. 106-53.000.

Stepanyan, Ernst Arakelovich: *See—*
Gilev, Vitaly Konstantinovich; Ovanesov, Jury Vagarshevich; Sarkisov, Rafael Tevosovich; and Stepanyan, Ernst Arakelovich, 3,708,054.

Stephanian, Ernst Arakelovich: *See—*
Gilev, Vitaly Konstantinovich; Popov, Vyacheslav Dmitrievich; Sarkisov, Rafael Tevosovich; and Stephanian, Ernst Arakelovich, 3,708,165.

Stephens, Donald S.; and Banic, James M., Jr., to Westinghouse Electric Corporation. Regulating and filtering transformer. 3,708,744, Cl. 323-60.000.

Sterling Drug, Inc.: *See—*
Collins, Joseph C., 3,708,473.

Sterling, Henley Frank; and Bush, Eric Langley, to International Standard Electric Corporation. Electrolytic capacitor electrode comprising semiconductor with film-forming metal coating. 3,708,728, Cl. 317-230.000.

Stern, David, to Combined Optical Industries, Limited. Rear-view mirror with reflective inclined prism surfaces. 3,708,222, Cl. 350-303.000.

Stewart-Warner Corporation: *See—*
Sobchak, Frank L., 3,708,636.

Stichman, John H.: *See—*
Miller, Joseph G.; Stichman, John H.; and Bernstein, Theodore, 3,708,685.

Stier, Henry Willy: *See—*
Schnellman, Oscar; and Stier, Henry Willy, 3,707,809.

Stillwagon, George B., Jr., to Gardner-Denver Company. Magnetic fastener driving tool. 3,707,894, Cl. 81-125.000.

Stock, Michael J.; and Kotal, John R., to Continental Can Company, Inc. High-speed inverted object detector. 3,708,679, Cl. 250-223.00r.

Stop-Motion Devices Corporation: *See—*
Matzel, George J., 3,707,854.

Stoppard, William E., to Leesona Corporation. Strand handling apparatus and method. 3,708,134, Cl. 242-18.00r.

Story, Anne W., to United States of America, National Aeronautics and Space Administration. System for indicating direction of intruder aircraft. 3,708,671, Cl. 250-209.000.

Stout, Gilbert T.: *See—*
Krause, Walter J.; and Stout, Gilbert T., 3,708,042.

Strader, George C.; and Goldfarb, Adolph E., to Mattel, Inc. Game apparatus. 3,708,168, Cl. 273-1.00r.

Strang, Donald E. Saddle horn wrap. 3,707,827, Cl. 54-46.000.

Strehlke, Peter: *See—*
Vorbruggen, Helmut; and Strehlke, Peter, 3,708,469.

Streuer, Wilhelm A.: *See—*
Cosley, Colman; and Streuer, Wilhelm A., 3,708,635.

Stringham, Roger S.: *See—*
Tolberg, Wesley E.; Stringham, Roger S.; and Rewick, Robert T., 3,708,570.

Stroble, Howard G., to National Cash Register Company, The. Couplet transparency manufacturing process. 3,708,323, Cl. 117-36.700.

Strocker, Gunter, to Schade, Gustav, Maschinenfabrik. Device for removing bulk material from storage. 3,708,056, Cl. 198-36.000.

Stromberg-Carlson Corporation: *See—*
Altenburger, Otto, 3,708,627.

Stroms, Karl F.: *See—*
Hildenbrand, Walter W.; Levine, Wilbur J.; Manning, Stanley A.; and Stroms, Karl F., 3,708,798.

Stumpf, Robert J., to Kimberly-Clark Corporation. Method of making elastic high-loft nonwoven fabric with improved cross directional strength. 3,708,361, Cl. 156-72.000.

Sturge, Derek William James: *See—*
Voice, Eric Handley; Graham, Leslie Wilfred; and Sturge, Derek William James, 3,708,559.

Sturgeon, Walter L., to Pengo Corporation. Locking means for cap type tooth. 3,707,788, Cl. 37-142.00a.

Stuy, Harry. Fluid-distribution device. 3,708,122, Cl. 239-317.000.

Sudnishnikov, Boris Vasilievich: *See—*
Nazarov, Nikolai Grigorievich; Chinakal, Nikolai Andreevich; Sudnishnikov, Boris Vasilievich; Kostylev, Alexandr Dmitrievich; Gurkov, Konstantin Stepanovich; and Tupitsyn, Konstantin Konstantinovich, 3,708,023.

Sugihara, Yasuhiro: *See—*
Nakabe, Ryuhei; Fujisawa, Seiji; Sugihara, Yasuhiro; and Meki, Norio, 3,708,613.

Sugimoto, Kaname: *See—*
Mitsuhashi, Masakazu; Hirao, Mamoru; and Sugimoto, Kaname, 3,708,396.

Sugiura, Mamoru; Kano, Kunio; Kimura, Kazuaki; and Oono, Hiroyuki, to Ono Pharmaceutical Co., Ltd. Novel anti-inflammatory substances and production thereof. 3,708,576, Cl. 424-115.000.

Sullivan, Raymond J.: *See—*
Bock, John W.; Feiertag, Orrin G.; and Sullivan, Raymond J., 3,708,664.

Sulzer Brothers, Ltd.: *See—*
Pfarrwaller, Erwin, 3,707,995.

Sumitomo Chemical Co., Ltd.: *See—*
Yamahara, Takeshi; Kishimoto, Hiroshi; Nakamura, Shinji; Deguchi, Takashi; and Takamatsu, Shichiro, 3,708,548.

Sumitomo Metal Industries, Ltd.: *See—*
Kishida, Tohru; Arikawa, Tadashi; Matsuyama, Shigeru; and Fukushige, Shinobu, 3,708,314.

Summerfield, William F.: *See—*
Tucker, James I., Jr.; Bales, Joseph H.; Bosley, Denis V.; Prodger, Brian S.; Ruppel, Kurt; and Summerfield, William F., 3,707,802.

Summers, Ronald J., to Du Pont de Nemours, E. I., and Company. Process of preparing a tufted product. 3,707,746, Cl. 28-72.20f.

Super Steel Treating Co.: *See—*
Leland, Claude H., 3,708,156.

Surgent, John G.: *See—*
Dailey, Jack R.; and Surgent, John G., 3,708,788.

Surville, Renaud de: *See—*
Berthoux, Jean; Schneider, Gerard; and Surville, Renaud de, 3,708,523.

Susquehanna Corporation, The: *See—*
Dunfee, Danny D.; Evans, Robert W.; and Grimm, Richard C., 3,707,918.
Griffiths, William R.; Johnston, Donald E.; Yates, John S.; and Layer, Gerard E., 3,708,138.

Suter, Hubert: *See—*
Kratzer, Otto; Suter, Hubert; and Wirth, Friedrich, 3,708,504.

Sutton, Blaine M.: *See—*
McGusty, Elizabeth R.; and Sutton, Blaine M., 3,708,579.

Sutton, Ralph L., to International Harvester Company. Corn harvester rolls. 3,707,833, Cl. 56-104.000.

Suzor, Herve: *See—*
Smith, Peter; and Suzor, Herve, 3,708,337.

Suzuki, Etsuji: *See—*
Hoshina, Naomi; and Suzuki, Etsuji, 3,708,736.

Suzuki, Hiroshi: *See—*
Koyanagi, Shunichi; Ogawa, Kinya; Sekigawa, Fujio; Suzuki, Hiroshi; and Ono, Shigeru, 3,708,305.

Suzuki, Masaru, to Kabushiki Kaisha Tokai Rika Denki Seisakusho. Accidental lock preventing device. 3,708,032, Cl. 180-114.000.

Swaim, Jessie E.: *See—*

Bell, Cecil R.; Swaim, Jessie E.; Gilgo, Horace Paul; Rogers, Robert C.; Sizemore, Walter Ray; and Orr, Samuel M., Jr., 3,707,825.

Swanson, John W., to Cities Service Oil Company. Electric discharge machining fluid. 3,708,422, Cl. 252-49.600.

Sweeney, William A., to Chevron Research Company. 2-Olefin sulfonate for liquid detergents. 3,708,437, Cl. 252-555.000.

Swenson, Henry F. Apparatus and method for forming relief portion in the periphery of a grinding wheel. 3,707,956, Cl. 125-11.000.

Swift, Harold E.: *See—*
Beuther, Harold; and Swift, Harold E., 3,708,550.

Swiss Aluminium Ltd.: *See—*
Laube, Max, 3,708,414.

Syntex Corporation: *See—*
Nelson, Peter H.; and Untch, Karl G., 3,708,547.

Syrjanen, Eero; and Reijonen, Olavi, to MKT-tehtaat Oy. Device for manufacturing cheese of cheddar type. 3,707,769, Cl. 99-460.000.

Systems Capital Corporation: *See—*
Connell, Joseph A.; Baranyi, Anthony J.; and Laylander, Paul V., 3,707,850.

Szynka, Peter, to Lohmann & Stollerfoht Aktiengesellschaft. Fluid pressure clutch with emergency screw operator. 3,708,048, Cl. 192-83.000.

Takagi, Tatsuya; and Takagi, Teruya. Pipe joint. 3,708,186, Cl. 285-341.000.

Takagi, Teruya: *See—*
Takagi, Tatsuya; and Takagi, Teruya, 3,708,186.

Takagi, Toshitsugu: *See—*
Akito, Eiichiro; Takagi, Toshitsugu; Soda, Yakio; and Ishibashi, Masataka, 3,708,594.

Takahashi, Saburo: *See—*
Okamoto, Hiromu; Ohi, Takuo; Tamura, Jyotaro; Takahashi, Saburo; Oyama, Hiroshi; Ueda, Hideo; Sasaki, Kunihiko; and Ishikawa, Hiromichi, 3,708,278.

Takahashi, Yoshio: *See—*
Yoshinaga, Eiichi; Takahashi, Yoshio; and Kado, Masaru, 3,708,573.

Takamatsu, Shichiro: *See—*
Yamahara, Takeshi; Kishimoto, Hiroshi; Nakamura, Shinji; Deguchi, Takashi; and Takamatsu, Shichiro, 3,708,548.

Takeda Chemical Industries, Ltd.: *See—*
Yokotani, Hajime; Miyamoto, Masuo; and Murata, Tadakazu, 3,708,540.

Takeshima, Saburo: *See—*
Akiyama, Yuji; Ishii, Yasuyoshi; Ozawa, Shigeo; and Takeshima, Saburo, 3,708,706.

Tamai, Yasuo: *See—*
Matsumoto, Seiji; and Tamai, Yasuo, 3,707,943.

Tamminen, Pentti Juuse. Galvanic battery wherein each cell as enclosed in a cover comprising electrically insulating and electrically conductive plastic foils. 3,708,340, Cl. 136-111.000.

Tamura, Jyotaro: *See—*
Okamoto, Hiromu; Ohi, Takuo; Tamura, Jyotaro; Takahashi, Saburo; Oyama, Hiroshi; Ueda, Hideo; Sasaki, Kunihiko; and Ishikawa, Hiromichi, 3,708,278.

Tang, Donald T.: *See—*
Sha, Richard T.; and Tang, Donald T., 3,708,766.

Taoka Dyestuffs Manufacturing Co., Ltd.: *See—*
Oguri, Hiroki; and Nagasaki, Hideo, 3,708,554.

Tashiro, Kenichi; Furuto, Yoshio; Shigihara, Takeji; Ikawa, Kazuo; and Okano, Yukimitsu, to Furukawa Electric Co. Ltd. and Stanley Electric Co., Ltd. Smoke detector in which air entrance and egress are located in oppositely disposed surfaces which are shapd to cause an air velocity differential. 3,708,675, Cl. 250-218.000.

Tatham, James P., to Continental Can Company, Inc. Control circuitry for direct current. 3,708,687, Cl. 307-202.000.

Tatsutomi, Yasuo: *See—*
Kuroda, Takashi; and Tatsutomi, Yasuo, 3,707,892.

Tawfik, David A.: *See—*
Curran, Peter F.; Tawfik, David A.; and James, Robert L., 3,708,791.

Teboul, Albert: *See—*
Aubry, Bernard; Gillot, Jacques; Masselot, Yves; and Teboul, Albert, 3,708,157.

Techni-Chem Company, The: *See—*
Pivawer, Philip M., 3,708,472.

Tecna Corporation: *See—*
Kitrilakis, Sotiris; and Robinson, Thomas Charles, 3,707,967.

Teijin Limited: *See—*
Fujiwara, Shigeru; Nagae, Kenji; and Okuhashi, Tomomi, 3,708,335.
Horimoto, Kohei; Kawamura, Masaharu; Norota, Susumu; and Okui, Mitsuhiko, 3,708,561.
Ichikawa, Yataro; and Tokashiki, Michiyuki, 3,708,532.
Ishimoto, Sachio; Togawa, Haruo; Honda, Yuitsu; and Saiki, Noritsugu, 3,708,534.

Tektronix Inc.: *See—*
Bateman, Glenn; and Roberts, John A., 3,708,749.
Gilbert, Barrie, 3,708,691.

Teledyne, Inc.: *See—*
Nuccel, Albert W., 3,708,099.

Teledyne Industries, Inc.: *See—*
Rudy, Erwin, 3,708,355.

Telefonaktiebolaget L M Ericsson: *See—*
Nilsson, Lars Konrad, 3,708,762.

Telesco Brophey Limited: *See—*
Engel, Karl, 3,708,102.

Tenneco Chemicals, Inc.: *See—*
Mikherjee, Barid B.; Brown, Dale G.; and Hill, Ira D., 3,708,528.

Terai, Masaaki: *See—*
Matsuda, Ryoichi; Terai, Masaaki; and Hojyo, Yasuo, 3,708,630.

Terranova, Warren W., to Bausch & Lomb Incorporated. Apparatus for locating a variable optical focal point. 3,708,230, Cl. 356-125.000.

Terry, Lewis E.: *See—*
Koger, Terrell B.; and Terry, Lewis E., 3,708,403.

Tevault, William: *See—*
Hebeisen, Richard; and Tevault, William, 3,708,604.

Texas Instruments, Incorporated: *See—*
Wakefield, Robert Henry, Jr.; Cunningham, James Alan; and Hswe, Myint, 3,708,360.

Textron, Inc.: *See—*
Briggs, Peleg B., Jr., 3,708,095.
Burke, George E., Jr., 3,708,096.
Fisher, Edward I., 3,708,097.
Lindblom, Frank W., 3,708,224.

Theis, James V., Jr.; and Davis, Lynn M., to Hollymatic Corporation. Speed governor. 3,708,240, Cl. 415-36.000.

Theis, James V., Jr.; McCord, John B.; and Holly, Harry H., to Hollymatic Corporation. Fluid engine. 3,708,241, Cl. 415-80.000.

Thermal Transfer Corporation: *See—*
Krause, Wilhelm, 3,708,599.

Thermo King Corporation: *See—*
Howland, Leland L., 3,708,683.

Thoma, Wilhelm; Oertel, Harald; and Rinke, Heinrich, to Farbenfabriken Bayer Aktiengesellschaft. Linear segmented polyurethanes. 3,708,453, Cl. 260-30.200.

Thomas & Betts Corporation: *See—*
Wolyn, Joseph, 3,707,756.

Thomas, George David: *See—*
Winstrom, Willis L.; Engel, John T.; Sigler, Alan D.; and Thomas, George David, 3,708,583.

Thomas, Gordon D.; and Gresham, James T., to Kimberly-Clark Corporation. Non-woven roll towel material. 3,708,383, Cl. 161-57.000.

Thomas, Jozef A.; Klein, Joseph F. M.; and Geurts, Leonardus H., to Stamicarbon N.V. Process of preparing α-cyanobutyraldimines. 3,708,515, Cl. 260-464.000.

Thompson, David Harry: *See—*
Alexander, David George; Lloyd, Anthony Michael; Greensides, Geoffrey Charles; and Thompson, David Harry, 3,708,512.

Thompson, Ralph B.; Pappas, Peter G.; and Sandri, Joseph M., to Nalco Chemical Company. Detergent builders. 3,708,436, Cl. 252-527.000.

Thomson-CSF: *See—*
Guenard, Pierre; and Epsztein, Bernard, 3,708,764.
Pircher, Georges, 3,708,229.

Thorne, John R.: *See—*
Newman, Frederick S.; Thorne, John R.; and Hartman, John T., 3,708,407.

Thornhill, Richard A.: *See—*
Aichenegg, Paul C.; and Thornhill, Richard A., 3,708,582.

Throssell, Norman J. Collapsible shelter unit. 3,708,199, Cl. 296-23.0mc.

Thumm, Fritz, to Wepuko, Werkzeug-Pumpen- und Kompressorenfabrik Von Neudeck & Co. Regulated radial piston pump. 3,708,250, Cl. 417-221.000.

Tilley, James W. Vehicle optical guidance system. 3,708,668, Cl. 250-202.000.

Timex Corporation: *See—*
Wash, Gerrard, 3,708,343.

Timmerman, Daniel Maurice; Van Paesschen, August Jean; and Verhille, Karel Eugeen, to Gevaert-Agfa N.V. Electroconductive layers. 3,708,289, Cl. 96-67.000.

Timmins, Robert S.; Horton, Bernard S.; and Goldsmith, Robert L., to Abcor, Inc. Method for the production of cheese solids. 3,707,770, Cl. 99-116.000.

Tinlin, Frank, to International Research & Development Company, Limited. Low temperature apparatus. 3,708,705, Cl. 310-52.000.

Tischler, Edward J., to Ecodyne Corporation. Timer. 3,708,068, Cl. 210-140.000.

Toews, Vern J.; and Wigle, Harold E., to Bryan, William P., Jr. and Toews, Vern J.; d/b/a B&T Gardens. Container and handle arrangement. 3,707,806, Cl. 47-34.130.

Toews, Vern J.; d/b/a B&T Gardens: *See—*
Toews, Vern J.; and Wigle, Harold E., 3,707,806.

Togawa, Haruo: *See—*
Ishimoto, Sachio; Togawa, Haruo; Honda, Yuitsu; and Saiki, Noritsugu, 3,708,534.

Toggweiler, Ulrich; and Roselli, Frank F., to Diamond Shamrock Corporation. Polyurethane foams and elastomers based on halogen-containing polyesters. 3,708,443, Cl. 260-2.5av.

Tokashiki, Michiyuki: *See—*
Ichikawa, Yataro; and Tokashiki, Michiyuki, 3,708,532.

Tokico, Ltd.: *See—*
Katakura, Shiro; and Nishida, Yutaka, 3,708,113.

Tokyo Shibaura Electric, Co.: *See—*
Kondo, Motoya, 3,707,877.

Tokyo Shibaura Electric Co., Ltd.: *See—*

Akiyama, Yuji; Ishii, Yasuyoshi; Ozawa, Shigeo; and Takeshima, Saburo, 3,708,706.
Hoshina, Naomi; and Suzuki, Etsuji, 3,708,736.
Kurokawa, Toshio; Nishiyama, Shoji; Okubo, Toshio; and Naga, Katsumi, 3,708,662.
Tokyo Shibaura Electric Company, Ltd.: *See—*
Menju, Shinichi; and Aoyagi, Hirokuni, 3,708,774.
Tolberg, Wesley E.; Stringham, Roger S.; and Rewick, Robert T., to Stanford Research Institute. Perfluoro ammonium cation-containing ionic salts and process for preparing them. 3,708,570, Cl. 423-301.000.
Tomasino, Charles; and James, Steve Clifton, to Burlington Industries, Inc. Durable press rainwear. 3,708,327, Cl. 117-76.00t.
Tomkins, Brian Bolton: *See—*
Pigott, Albert Edward; Tomkins, Brian Bolton; Raraty, Lionel Edward, 3,707,864.
Toms, Nathaniel C., II. Automobile hanger bracket. 3,708,093, Cl. 224-42.45a.
Toray Industries, Inc.: *See—*
Morita, Ken-Ichi; and Kobayashi, Tsuneo, 3,708,516.
Torri, Tatsumi; Kozakai, Asao; Yamamoto, Takekazu; and Nyunoya, Mizuo, to Aisin Seiki Company, Limited. Vehicle expanding brake assembly. 3,708,044, Cl. 188-326.000.
Tournere, Marcel Joseph: *See—*
Bruneau, Henri; Langner, Gerhard; and Tournere, Marcel Joseph, 3,708,242.
Townsend, Eric J., to Commissariat a l'Energie Atomique. Installation for mounting sealing rings and the like, especially for radioactive enclosures. 3,707,758, Cl. 29-235.000.
Toyama, Kunio: *See—*
Nakanishi, Atsuo; Izawa, Shinich; and Toyama, Kunio, 3,708,455.
Toyo Kogyo Co., Ltd.: *See—*
Kuroda, Takashi; and Tatsutomi, Yasuo, 3,707,892.
Toyo Pulp Co., Ltd.: *See—*
Hanaya, Morimasa, 3,708,063.
Toyo Soda Manufacturing Co., Ltd.: *See—*
Kunii, Daizo; and Kunugi, Taiseki, 3,708,552.
Toyoda Koki Kabushiki Kaisha: *See—*
Fukatsu, Kazuyoshi, 3,707,879.
Toyota Jidosha Kogyo Kabushiki Kaisha: *See—*
Ito, Shin, 3,707,890.
Mori, Takaazu, 3,708,782.
Nakada, Masshiko; and Matsumoto, Hirofumi, 3,707,954.
Tranchero, Jacques. Three hydraulic lifting stages self-propelled crane which may be mounted. 3,708,037, Cl. 182-2.000.
Trecker, David J.: *See—*
Borden, George W.; and Trecker, David J., 3,708,495.
Treichler, Ernest, to Parker-Hannifin Corporation. Pressure balanced tube assembly. 3,707,878, Cl. 92-164.000.
Triem, Leonard C. Enclosure for landfill disposal site. 3,708,153, Cl. 256-25.000.
Triggiani, Leonard V.; Haberman, Norton; and Sanchez, Moises G., to Grace, W. R., & Co. Nuclear fuel. 3,708,432, Cl. 252-301.10s.
Trimpi, Robert L.; Nealy, John E.; and Grose, William L., to United States of America, National Aeronautics and Space Administration. Combustion detector. 3,708,674, Cl. 250-217.00f.
Troisi, George A.: *See—*
Schertz, Eugene P.; and Troisi, George A., 3,708,255.
Trolliet, Bernard: *See—*
Vigreux, Jacques; and Trolliet, Bernard, 3,708,639.
Trompeter Electronics Inc.: *See—*
Trompeter, Emanuel, 3,708,781.
Trompeter, Emanuel, to Trompeter Electronics Inc. Electrical connector. 3,708,781, Cl. 339-177.00r.
Tronicair International Limited: *See—*
Smillie, George Horn; and Johnstone, Frank, 3,708,650.
TRW Inc.: *See—*
Bailey, Joseph K., Jr., 3,707,753.
Lubowitz, Hyman R.; Burns, Eugene A.; and Jones, John F., 3,708,370.
Lubowitz, Hyman R., 3,708,459.
Woodruff, George N., 3,708,022.
Work, George A., 3,708,669.
Tryon, Ned A. Decoy. 3,707,798, Cl. 43-3.000.
Tsubakimoto, Tsuneo; Nikki, Masao; and Mizuta, Norio, to Nippon Shokubai Kagaku Kogyo, Co., Ltd. Hydrogel of unsaturated polyester resin and unsaturated carboxylic acid polymer salt, and hardened composites thereof. 3,708,452, Cl. 260-29.6nr.
Tsyganok, Vladimir Andreevich: *See—*
Grinevich, Feodosy Borisovich; and Tsyganok, Vladimir Andreevich, 3,708,698.
Tubal Industries, Inc., mesne: *See—*
Dallas, Nick S.; and Uzumecki, Richard W., 3,708,351.
Tucker, Benjamin W.: *See—*
Sayigh, Adnan A. R.; Tucker, Benjamin W.; and Ulrich, Henri, 3,708,439.
Tucker, James I., Jr.; Bales, Joseph H.; Bosley, Denis V.; Prodger, Brian S.; Ruppel, Kurt; and Summerfield, William F., to Mattel, Inc. Delayed starting indicator apparatus and toy starting system. 3,707,802, Cl. 46-1.00k.
Tung, Chi Fang, to Minnesota Mining and Manufacturing Company. Heat-sensitive retro-reflective imaging sheet. 3,708,378, Cl. 161-6.000.
Tupitsyn, Konstantin Konstantinovich: *See—*
Nazarov, Nikolai Grigorievich; Chinakal, Nikolai Andreevich; Sudnishnikov, Boris Vasilievich; Kostylev, Alexandr Dmitrievich; Gurkov, Konstantin Stepanovich; and Tupitsyn, Konstantin Konstantinovich, 3,708,023.
Turner, Derek T.; and Scheer, John E., to Drexel University. Metallic modified plastic compositions and method for the preparation thereof. 3,708,387, Cl. 161-168.000.
Turokawa, Toshio: *See—*
Kurokawa, Toshio; Nishiyama, Shoji; Okubo, Toshio; and Naga, Katsumi, 3,708,662.
Turowski, Eles, Paula Marie: *See—*
Franck, Heinz-Gerhard; Metzendord, Walter; Turowski, Johannes; Omran, Jaafar; and Nijssen, Jozef H. G., 3,708,442.
Turowski, Johannes: *See—*
Franck, Heinz-Gerhard; Metzendord, Walter; Turowski, Johannes; Omran, Jaafar; and Nijssen, Jozef H. G., 3,708,442.
Tuttle, Wainwright, to Spati Industries, Inc. Solid state position sensing apparatus. 3,707,874, Cl. 73-398.00r.
Uchida, Kosaku: *See—*
Kunishige, Hidenori; and Uchida, Kosaku, 3,707,941.
Ueda, Atumi, to Aisin Seiki Kabushiki Kaisha. Hydraulic brake system. 3,708,030, Cl. 180-79.20r.
Ueda, Hideo: *See—*
Okamoto, Hiromu; Ohi, Takuo; Tamura, Jyotaro; Takahashi, Saburo; Oyama, Hiroshi; Ueda, Hideo; Sasaki, Kunihiko; and Ishikawa, Hiromichi, 3,708,278.
Ugi, Ivar Karl. 4,4'-Diisocyano-thio-diphenylether. 3,708,517, Cl. 260-465.00h.
Ugine Kuhlmann: *See—*
Nordmann, Joseph; Mattioda, Georges Dominique; and Loiseau, Gerard Paul Marie Henri, 3,708,544.
Ulbing, Otmar M., to Borg-Warner Corporation, mesne. Engine apparatus. 3,707,955, Cl. 123-73.0as.
Ulrich, Henri: *See—*
Sayigh, Adnan A. R.; Tucker, Benjamin W.; and Ulrich, Henri, 3,708,439.
Unger, Hans Peter Olof; Westberg, Johan Eric Hayden; Berndtsson, Gunnar Ingemar; and Schwartz, Stephan Lars, to AGA Aktiebolag. Container for blood. 3,708,110, Cl. 233-26.000.
Unican Security Systems, Ltd.: *See—*
Berger, Carl, 3,708,729.
Union Carbide Corporation: *See—*
Barlow, Joel William; Azrak, Raymond George; and Robeson, Lloyd Mahlon, 3,708,454.
Barthel, Alfred, 3,708,131.
Borden, George W.; and Trecker, David J., 3,708,495.
Frazer, John S., 3,708,092.
Hard, Robert A.; and Ripley, Robert L., 3,708,206.
Kozak, Philip E., 3,708,601.
Union Oil Company of California: *See—*
Biddick, Royce E., 3,708,341.
Fenton, Donald M., 3,708,539.
Unisem Corporation: *See—*
McDonald, Bruce A., 3,708,731.
United Aircraft Corporation: *See—*
Athey, Roy L., 3,708,353.
Roebelen, George J., Jr.; and Fitzsimmons, Thomas E., 3,707,757.
Shaw, Richard H., 3,708,404.
United Kingdom Atomic Energy Authority: *See—*
Pigott, Albert Edward; Tomkins, Brian Bolton; Raraty, Lionel Edward, 3,707,864.
Voice, Eric Handley; Graham, Leslie Wilfred; and Sturge, Derek William James, 3,708,559.
United Merchants and Manufactures, Inc.: *See—*
Zebley, Donald Dane; and Cashion, Joseph Wayne, 3,707,996.
United States Gypsum Company: *See—*
Nelsson, Nels, 3,707,818.
United States of America
Agriculture: *See—*
Lewis, John B.; and Hendick, Glen W., 3,708,450.
Army: *See—*
Morrow, Scott I., 3,708,357.
Rashis, Bernard, 3,708,140.
Rocha, John G.; and Livingston, Richard W., 3,707,794.
Warren, Raymond W., 3,708,247.
Atomic Energy Commission: *See—*
Binkley, Norman C.; and Hammond, Joseph P., 3,707,763.
Campbell, David O., 3,708,392.
Christofilos, Nicholas C., 3,708,391.
Golliher, Waldo R.; Harris, Robert L.; and Le Doux, Reynold A., Jr., 3,708.568.
Leitnaker, James M.; and Spear, Karl E., II, 3,708,433.
McWhorter, William C.; and Dykes, Norman, 3,708,451.
Raynor, Gilbert S., 3,707,869.
Schulz, Wallace W., 3,708,508.
Waymire, Gary R.; and Lubeck, John F., 3,708,393.
Interior: *See—*
Mason, Charles M.; and Forshey, David R., 3,708,356.
National Aeronautics and Space Administration: *See—*
Story, Anne W., 3,708,671.
Trimpi, Robert L.; Nealy, John E.; and Grose, William L., 3,708,674.
National Aeronautics and Space Administration; Deputy Administrator; with respect to an invention of:

Haury, Vernon E. Hydrazinium nitroformate propellant with saturated polymeric hydrocarbon binder. 3,708,359, Cl. 149-19.000.
Moen, Walter K. Self-cycling fluid heater. 3,708,419, Cl. 204-328.000.
Navy: *See—*
Duncan, Cecil L.; McNelia, John F.; and Pickler, William C., 3,707,912.
Emmet, Robert T., 3,707,871.
Meraz, Daniel, Jr.; Simshauser, Anthony J.; Yeakey, Jack A.; and Carpenter, David W., 3,707,916.
Wheeler, Phillip R., 3,708,139.
Navy, mesne: *See—*
Grakauskas, Vytautas, 3,708,571.
United States of Health, Education and Welfare: *See—*
Freed, Paul S., 3,707,960.
United States Steel Corporation: *See—*
Chao, Hung-Chi, 3,708,284.
DeBray, Harold W., 3,708,159.
Douty, Donald L., 3,708,091.
Unkle, Truman F., Jr.: *See—*
Loos, John F.; and Unkle, Truman F., Jr., 3,708,345.
Untch, Karl G.: *See—*
Nelson, Peter H.; and Untch, Karl G., 3,708,547.
Upjohn Company, The: *See—*
Alberino, Louis M.; Farrissey, William J., Jr.; and Rose, James S., 3,708,458.
Frulla, Floro F.; Odinak, Alec; and Sayigh, Adnan A. R., 3,708,440.
Hester, Jackson B., Jr., 3,708,592.
Sayigh, Adnan A. R.; Tucker, Benjamin W.; and Ulrich, Henri, 3,708,439.
U.S. Philips Corporation: *See—*
Bongenaar, Hendrik; and Doreleijers, Theodorus Cornelis Gerardus, 3,708,369.
Esveldt, Cornelis Jacobus; and Slijkerman, Petrus Nicolaas, 3,708,423.
Hansen, Norbert Ernst; and Wadow, Dieter, 3,708,661.
Skoyles, Derek Robert, 3,708,213.
U.S. Rubber Reclaiming Co., Inc.: *See—*
Bynum, Douglas, Jr.; and Gailaway, Bob M., 3,707,901.
USM Corporation: *See—*
Muhlbach, Anton, 3,707,946.
Salway-Waller, Malcolm, 3,708,652.
Uzumecki, Richard W.: *See—*
Dallas, Nick S.; and Uzumecki, Richard W., 3,708,351.
Vadjushin, Vladimir Alexandrovich. Teaching machine. 3,707,780, Cl. 35-9.00f.
Van Arsdale, Howard: *See—*
Ippolito, Anthony D.; and Van Arsdale, Howard, 3,708,448.
Ippolito, Anthony D.; and Van Arsdale, Howard, 3,708,449.
Van der Meer, Leonardus Petrus, to N.V. Leidsche Apparatenfabriek. Rotating bottle closing machine. 3,707,822, Cl. 53-331.500.
Van Dyk, John W.; Vining, Roy H.; and Wittman, David, to Du Pont de Nemours, E. I., and Company. Multi-angle panel holding device. 3,708,233, Cl. 356-244.000.
Van Heyningen, Earle M.: *See—*
Webber, J. Alan; and Van Heyningen, Earle M., 3,708,480.
Van Laar, Jacobus: *See—*
Owen, Arthur John; Visser, Reier; and Van Laar, Jacobus, 3,708,317.
Van Marter, Charles W.: *See—*
Kohler, Thomas P.; Smith, Marvin W.; and Van Marter, Charles W., 3,708,739.
Van Paesschen, August Jean: *See—*
Timmerman, Daniel Maurice; Van Paesschen, August Jean; and Verhille, Karel Eugeen, 3,708,289.
Van Pee, Paul Desire: *See—*
Vanreusel, Gerard Laurens; Van Pee, Paul Desire; and De Laet, Jules Maria, 3,708,298.
Van Popta, Yftinus Frederik, to N.V. Hollandse Signaalapparaten. Monopulse radar apparatus. 3,708,794, Cl. 343-7.400.
Van Raalte, John A.; and Christiano, Victor, to RCA Corporation. Intelligence-handling device having means for limiting induced electrostatic potential. 3,708,712, Cl. 315-10.000.
Van Veen, Anton. Cigar making machine. 3,707,976, Cl. 131-36.000.
Van Vliet, Nicolaas Pieter; and Peters, Jacobus Albertus Maria, to Organon Inc. Novel Δ^6-steroids of the oestrane series. 3,708,511, Cl. 260-397.500.
Van Vorous, Theodore: *See—*
Kurtz, Robert G.; and Van Vorous, Theodore, 3,708,325.
Van Wuyckuyse, Hendrik Johan, to Schokbeton Products Corporation. Protruding panel frame member embedded in surrounding concrete for the attachment of a window construction. 3,707,816, Cl. 52-213.000.
Vanderberg, Lawrence J.: *See—*
Jania, Zbigniew J.; and Vanderberg, Lawrence J., 3,708,031.
Vandewarker, Richard E.: *See—*
Snow, Kenneth A.; and Vandewarker, Richard E., 3,708,758.
Vanlerberghe, Guy: *See—*
Kalopissis, Gregoire; and Vanlerberghe, Guy, 3,708,364.
Vanreusel, Gerard Laurens; Van Pee, Paul Desire; and De Laet, Jules Maria, to Agfa-Gevaert. Method of producing direct positive images with photographic silver halide material containing compound releasing iodide ions. 3,708,298, Cl. 96-64.000.
Vanslette, Robert A., to Foxboro Company, The. Construction of ion electrode. 3,708,411, Cl. 204-195.00m.
Vantill, Martinus Pieter Richard; Laing, Graham Stirling; and Lounsbury, Donald Mack, to Northern Electric Company Limited. Telephone hand test set. 3,708,634, Cl. 179-175.000.
Vater, Wulf: *See—*
Rucker, Dietrich; Bossert, Friedrich; Meyer, Horst; and Vater, Wulf, 3,708,489.
Vaughan, Graham John: *See—*
Painter, Roy; and Vaughan, Graham John, 3,708,348.
Veb Ingenieurburo Schiffbau: *See—*
Buchfuhrer, Gerhard; Dudszus, Alfred; Milles, Wilhelm; Lerche, Franz; Feyer, Gunter; Krause, Manfred; Grunwald, Josef; Hensel, Ulrich; Aust, Ingo; Ewald, Gunter; Langer, Walter; Ludke, Gunther; Mohle, Karl-Georg; Oberlander, Joachim; Kowalski, Horst; Gatzk, Eckard; Pernaux, Gerd; Schwank, Otto; Leschnewski, Konrad; Brose, Reinhard; Hartwig, Gunter; and Ploetz, Ulrich, 3,708,100.
Vecchietti, Vittorio: *See—*
Lauria, Francesco; Vecchietti, Vittorio; and Logemann, Willy, 3,708,482.
Vecchiutti, Robert: *See—*
Douchet, Charles; Grancher, Pierre; and Vecchiutti, Robert, 3,708,542.
Veeder Industries, Inc.: *See—*
Johnson, Arnold C., 3,708,114.
Veith, Alois L., to ITT Industries, Inc. Method of manufacturing a plurality of bridge rectifiers. 3,707,766, Cl. 29-588.000.
Velten & Pulver, Inc.: *See—*
Ackermann, Herman, 3,708,059.
Vereinigte Flugtedinische Werke Fokker GmbH: *See—*
Salamon, Wolfgang; and Lother, Rolf, 3,708,765.
Verhille, Karel Eugeen: *See—*
Timmerman, Daniel Maurice; Van Paesschen, August Jean; and Verhille, Karel Eugeen, 3,708,289.
Verhille, Karel Eugeen; and Voet, Luciaan Frans. Inorganic photoconductive pigments in an alkali soluble binder containing a polymeric dispersing agent. 3,708,290, Cl. 96-1.500.
Verwey, Cornelis W. J.: *See—*
Dautzenberg, Frits M.; Naber, Jaap E.; and Verwey, Cornelis W. J., 3,707,831.
Vettiger, Peter: *See—*
Frei, Armin Heinz; and Vettiger, Peter, 3,708,699.
Vicard, Pierre Georges. Spraying nozzles. 3,708,119, Cl. 239-11.000.
Vicom Corporation: *See—*
Boxall, Frank S., 3,708,624.
Vigreux, Jacques; and Trolliet, Bernard, to Delle-Alsthom. Pressure fluid extinguishing device for a circuit breaker. 3,708,639, Cl. 200-148.00r.
Villari, Frank K.; and Patel, Bhupendra C., to Kendall Company, The. Irrigation connector with shut-off valve. 3,707,972, Cl. 128-349.00r.
Vining, Roy H.: *See—*
Van Dyk, John W.; Vining, Roy H.; and Wittman, David, 3,708,233.
Viol, Gunter; and Kohfeld, Werner. Folding door arrangement. 3,708,009, Cl. 160-84.00v.
Visser, Reier: *See—*
Owen, Arthur John; Visser, Reier; and Van Laar, Jacobus, 3,708,317.
Vitamin Premixers of Omaha, Inc.: *See—*
Winstrom, Willis L.; Engel, John T.; Sigler, Alan D.; and Thomas, George David, 3,708,583.
Vladik, Liboslav: *See—*
Schierz, Winfried; and Vladik, Liboslav, 3,708,730.
Voet, Luciaan Frans: *See—*
Verhille, Karel Eugeen; and Voet, Luciaan Frans, 3,708,290.
Voice, Eric Handley; Graham, Leslie Wilfred; and Sturge, Derek William James, to United Kingdom Atomic Energy Authority. Method of making nuclear fuel-containing bodies. 3,708,559, Cl. 264-.500.
Volk, Joseph A., to Beta Corporation of St. Louis. Automatic control and antibacklash system. 3,707,978, Cl. 137-2.000.
Volk, Joseph A.; and Volk, Joseph A., Jr., to Beta Corporation. Method and apparatus for retrieving coded information of film. 3,708,677, Cl. 250-219.0dr.
Volk, Joseph A., Jr.: *See—*
Volk, Joseph A.; and Volk, Joseph A., Jr., 3,708,677.
Volkers, Hank, to S&S Corrugated Paper Machinery Co., Inc. Pressure roll loading. 3,707,909, Cl. 100-47.000.
Volkheimer, Lothar, to Hopt Electronic GmbH, Firma. Sliding potentiometer with a slider movable by a roller gear. 3,708,777, Cl. 338-183.000.
Volkswagenwerk Aktiengesellschaft: *See—*
Bigalke, Erhard; Pundt, Dieter H. W.; and Wolf, Jurgen, 3,707,951.
Klebba, Horst; and Maneck, Ernst, 3,708,192.
Vollmann, Hansjorg: *See—*
Von Der Eltz, Hans-Ulrich; Gunther, Dieter; Krell, Karl-Heinz; Matterstock, Karl; and Vollmann, Hansjorg, 3,708,258.
Von Der Eltz, Hans-Ulrich; Gunther, Dieter; Krell, Karl-Heinz; Matterstock, Karl; and Vollmann, Hansjorg, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Dyeing and

printing hydrophobic fiber in áqueous sulfonyl carbamic acid-typedyestuff solutions. 3,708,258, Cl. 8-21.000.

Vorbruggen, Helmut; and Strehlke, Peter, to Schering A.G. 2-Thiopyrimidine nucleosides. 3,708,469, Cl. 260-211.50r.

Vsesojuzny Nauchno-Issledovatelsky Institut Khirurgicheskoi Apparatury i Instrumentov: *See—*
Smirnov, Boris Andreevich; Axenova, Emilia Ivanovna; Rychkov, Vladimir Leonidovich; and Lukichev, Nikolai Dmitrievich, 3,707,970.

Waagner-Biro AG: *See—*
Roznovsky, Walter, 3,708,098.

Wachsmann, Judith M. Collapsible furniture from tubular frame sections of predetermined shape. 3,708,204, Cl. 297-440.000.

Wacker Werke KG: *See—*
Schulin, Gotthilf, 3,708,151.

Wadow, Dieter: *See—*
Hansen, Norbert Ernst; and Wadow, Dieter, 3,708,661.

Waggoner, Alan: *See—*
Keagle, Charles; Waggoner, Alan; and Phillips, Peter, 3,708,603.

Wagler, Robert John: *See—*
Grundon, Forrest Robert; Masterson, Frank Harrison; Wagler, Robert John; and Wustrau, Fred Ernest, 3,707,944.

Wagner Electric Corporation: *See—*
Bueler, Richard C., 3,708,211.
Hardwick, David R., 3,707,993.

Wakabayashi, Masashi: *See—*
Nishizawa, Masahiro; Wakabayashi, Masashi; and Nishino, Kosuke, 3,708,336.

Wakefield, Robert Henry, Jr.; Cunningham, James Alan; and Hswe, Myint, to Texas Instruments, Incorporated. Self-aligned gate field effect transistor with Schottky barrier drain and source. 3,708,360, Cl. 156-3.000.

Walker, Donald J.: *See—*
Solomon, Kenneth R.; Mletzko, Alfred E.; and Walker, Donald J., 3,708,797.

Wally, Robert F., to Phillips Petroleum Company. Hydrochloric acid/hydrofluoric acid treatment to remove asbestor fibers from a well bore. 3,708,014, Cl. 166-307.000.

Walsh, Robert R. Optical read-out means for locating and positioning objects with respect to a laser beam reference. 3,708,232, Cl. 356-172.000.

Walters, Glenn A. Precision angle measuring device. 3,708,231, Cl. 356-152.000.

Warren, Raymond W., to United States of America, Army. Fluid stepping motor. 3,708,247, Cl. 415-51.000.

Warshaw, Saul: *See—*
Loewenstein, Klaus L.; Eisenberg, Earnold J.; and Warshaw, Saul, 3,708,271.

Wash, Gerrard, to Timex Corporation. Primary cell case. 3,708,343, Cl. 136-133.000.

Watanabe, Masao; Mizoguchi, Hidekazu; and Hoshikawa, Makio, to Kanegafuchi Boseki Kabushiki Kaisha. Method and apparatus for scouring raw loose wool. 3,708,262, Cl. 8-139.000.

Watson, Donald W., to Xerox Corporation. Article processing process with feeder shuttle disconnect. 3,708,368, Cl. 156-300.000.

Watson, Patrick: *See—*
Barthalon, Maurice; Moiroux, Auguste; and Watson, Patrick, 3,707,924.

Wave Energy Systems, Inc.: *See—*
Boucher, Raymond M. G., 3,708,263.

Waymire, Gary R.; and Lubeck, John F., to United States of America, Atomic Energy Commission. Radial restraint mechanism for reactor core. 3,708,393, Cl. 176-40.000.

Weatherhead Company, The: *See—*
Acker, Richard C., 3,708,647.

Webber, J. Alan; and Van Heyningen, Earle M., to Lilly, Eli, and Company. 3-Cyanomethyl-delta-3-cephalosporin antibiotics and intermediates. 3,708,480, Cl. 260-243.00c.

Weber, Kurt H., to General Electric Company. Flash indicator for photoflash lamps. 3,707,903, Cl. 95-11.50r.

Weber, Leonard J. Split-rate meter construction. 3,708,049, Cl. 194-84.000.

Wechsler, Joseph R., to Stepan Chemical Company. Method of synthesizing fatty acids. 3,708,513, Cl. 260-413.000.

Weiberg, Otto: *See—*
Kleemann, Axel; Kruger, Manfred; Schreyer, Gerd; Weiberg, Otto; and Weigert, Wolfgang, 3,708,507.

Weigert, Wolfgang: *See—*
Kleemann, Axel; Kruger, Manfred; Schreyer, Gerd; Weiberg, Otto; and Weigert, Wolfgang, 3,708,507.

Weingarden, Marshall; and Levitt, Harold H. Album for filmstrip storage. 3,708,061, Cl. 206-45.340.

Weiss, Guenther: *See—*
Zeidler, Adolf; Fisher, Adolf; and Weiss, Guenther, 3,708,277.

Weisz, Robert G.: *See—*
Mayer, James F.; and Weisz, Robert G., 3,708,560.

Welch, Arnold D.; Dolfini, Joseph Edward; and Giarrusso, Frederick F., to Squibb, E. R., & Sons, Inc. Acyloxymethyl esters of alpha-ureidocyclo-hexadie nylalkylene-cephalosporins. 3,708,479, Cl. 260-243.00c.

Wells, John R.: *See—*
Sheeler, Phillip; and Wells, John R., 3,708,111.

Welsch, David Peter; and Yannes, Harry, to Cupic Foundations, Inc. High-waisted girdle. 3,707,973, Cl. 128-533.000.

Wepuko, Werkzeug-Pumpen- und Kompressorenfabrik Von Neudeck & Co.: *See—*
Thumm, Fritz, 3,708,250.

Werner & Pfleiderer: *See—*
Kopp, Eugen, 3,708,256.

Wessels, Philip S., 15% to Brown, Boniard I. Acoustical distillation apparatus. 3,708,401, Cl. 202-173.000.

Westberg, Johan Eric Hayden: *See—*
Unger, Hans Peter Olof; Westberg, Johan Eric Hayden; Berndtsson, Gunnar Ingemar; and Schwartz, Stephan Lars, 3,708,110.

Westinghouse Electric Corporation: *See—*
Burney, Ivan T., 3,707,828.
De Corso, Serafino M., 3,708,279.
Stephens, Donald S.; and Banic, James M., Jr., 3,708,744.

Westphal, Otto: *See—*
Kny, Gunter; and Westphal, Otto, 3,708,558.

Westrick, Robert E.: *See—*
Booth, William M.; and Westrick, Robert E., 3,708,654.

Wharton, James Hugh, to RCA Corporation. Gamma correction band-pass amplifier circuits. 3,708,615, Cl. 178-5.4st.

Wheeler, Phillip R., to United States of America, Navy. Missile control system. 3,708,139, Cl. 244-3.130.

Whiley, George M., Limited: *See—*
Hurst, Gerald Covington; and Belasco, Alan, 3,708,320.

Whirlpool Corporation: *See—*
Burkall, Alvin E., 3,707,882.
Marcade, Roque D.; and Janke, Donald E., 3,708,721.
McDanield, John S., 3,708,101.
Niewyk, Anthony; and Janke, Donald E., 3,707,856.
Wigfall, Robert T., 3,707,857.

Whitney, John A.; and Woods, Richard E., to Franklin Electric Co., Inc. Semiconductor thermal protection. 3,708,720, Cl. 317-13.00c.

Whittaker Corporation: *See—*
Zernow, Louis; and Mottet, Arthur Louis, 3,707,917.

Wick, Helmut: *See—*
Stahle, Helmut; Koppe, Herbert; Kummer, Werner; and Wick, Helmut, 3,708,485.

Wieland, Peter: *See—*
Anner, Georg; and Wieland, Peter, 3,708,503.

Wielebski, Wayne H.; and Ray, Glen, to Allen-Bradley Company. Method for adjusting the strength of high energy magnets. 3,708,727, Cl. 317-157.500.

Wigfall, Robert T., to Whirlpool Corporation. Multi-purpose sensor assembly for automatic washer. 3,707,857, Cl. 68-12.00r.

Wigle, Harold E.: *See—*
Toews, Vern J.; and Wigle, Harold E., 3,707,806.

Wilbeck Machine and Manufacturing, Inc.: *See—*
Wilbeck, Robert A., 3,708,018.

Wilbeck, Robert A., to Wilbeck Machine and Manufacturing, Inc. Twin-offset disc implement with releasable fastening means connecting dual frames. 3,708,018, Cl. 172-313.000.

Wilcock, Donald F.; and Winn, Leo W., to Mechanical Technology Incorporated. Hybrid boost bearing assembly. 3,708,215, Cl. 308-35.000.

Wildbolz, Rudolf: *See—*
Staheli, Paul; and Wildbolz, Rudolf, 3,708,210.

Wiles, Philip, to Erie, Technological Products, Inc. Semiconductor device with soldered terminals and plastic housing and method of making the same. 3,708,722, Cl. 317-234.00r.

Willett, Richard M., to Iowa State University Research Foundation, Inc. System for spectrum analysis including digital filter with variable sampling rate. 3,708,746, Cl. 324-77.00d.

Williams, Richard Fred: *See—*
Jackson, Albert Edward; and Williams, Richard Fred, 3,708,322.

Williams, Wilhelm A. Separable multiple envelopes openable without tools. 3,708,107, Cl. 229-69.000.

Wilson, H. W., Company: *See—*
Koether, Karl H.; and Dillin, Arthur J., 3,708,094.

Wilson, Richard D.: *See—*
Bochinski, Julius H.; Christe, Karl O.; Gunderloy, Frank C., Jr.; Pilipovich, Donald; and Wilson, Richard D., 3,707,762.

Wilson, Robert G.; and Rogers, Raymond W. Cleaning device for deep fat cooker. 3,707,907, Cl. 99-408.000.

Wilton-Davies, Colin C., to National Research Development Corporation. Method and apparatus for monitoring electrocardiac signals. 3,707,959, Cl. 128-2.06a.

Winchcombe, John J.; Windsor, John P. G.; and Biggs, Ian, to Dunlop Holdings Limited. Treatment of plastics materials. 3,708,362, Cl. 156-82.000.

Windsor, John P. G.: *See—*
Winchcombe, John J.; Windsor, John P. G.; and Biggs, Ian, 3,708,362.

Windya, Richard A.: *See—*
Davis, William M., Jr.; and Windya, Richard A., 3,708,695.

Winn, Leo W.: *See—*
Wilcock, Donald F.; and Winn, Leo W., 3,708,215.

Winstrom, Willis L.; Engel, John T.; Sigler, Alan D.; and Thomas, George David, to Vitamin Premixers of Omaha, Inc. Stabilized vitamin A additive. 3,708,583, Cl. 424-312.000.

Wirth, Friedrich: *See—*
Kratzer, Otto; Suter, Hubert; and Wirth, Friedrich, 3,708,504.

Wittman, David: *See—*
Van Dyk, John W.; Vining, Roy H.; and Wittman, David, 3,708,233.

Wloszek, Joseph T., to Custom Machine, Inc. Support for rotating and advancing cylindrical members. 3,708,079, Cl. 214-338.000.

Woletz, Robert M.: *See—*
Singer, M. Leonard; and Woletz, Robert M., 3,707,860.

Wolf, Jurgen: *See—*
Bigalke, Erhard; Pundt, Dieter H. W.; and Wolf, Jurgen, 3,707,951.

Wolfberg, Larry B.; and Harper, John, to Service Business Forms, Inc. Multi-line gluing of superimposed leaves. 3,707,773, Cl. 34-1.000.

Wolfe, Charles S. Fish mouth spreader and holder. 3,707,800, Cl. 43-53.500.

Wolff, Oswald: *See—*
Dietrich, Johannes; Wolff, Oswald; Amrehn, Hermann; and Beckmann, Gunter, 3,708,465.

Wolyn, Joseph, to Thomas & Betts Corporation. Wire positioner for terminal attaching machine. 3,707,756, Cl. 29-203.00d.

Wooden, John A., to Brookside Corporation. Plastic fan hub. 3,708,243, Cl. 416-134.000.

Woodling, Gerald L., to Goodyear Tire & Rubber, The. Variable speed conveyor. 3,707,923, Cl. 104-137.000.

Woodruff, George N., to TRW Inc. Low voltage spark drill. 3,708,022, Cl. 175-16.000.

Woods, Richard E.: *See—*
Whitney, John A.; and Woods, Richard E., 3,708,720.

Woodward, Arthur S., to Mattel, Inc. Curve accessory usable with track system for toy wheeled vehicles. 3,708,116, Cl. 238-10.00e.

Woodward, Robert Burns. Azetidino-thiazolidinemethane carboxylic acid and process for their manufacture. 3,708,476, Cl. 260-243.00c.

Work, George A., to TRW Inc. Method and apparatus for calibrating a solar array. 3,708,669, Cl. 250-205.000.

Wright, George C.: *See—*
Kozel, Charles A.; Baraglia, Nathan A.; and Wright, George C., 3,708,610.

Wszolek, Walter R.: *See—*
Kehr, Clifton L.; and Wszolek, Walter R., 3,708,413.

Wurm, Joseph: *See—*
Avogadro, Alessandro; and Wurm, Joseph, 3,708,267.

Wuskell, Joseph P.: *See—*
Dunlop, Andrew P.; and Wuskell, Joseph P., 3,708,502.

Wustrau, Fred Ernest: *See—*
Grundon, Forrest Robert; Masterson, Frank Harrison; Wagler, Robert John; and Wustrau, Fred Ernest, 3,707,944.

Wyman, Dennis G. Electric power cord and method of making. 3,708,608, Cl. 174-70.00r.

Wyman, Lewis C.: *See—*
Morrison, Robert B.; and Wyman, Lewis C., 3,708,709.

Xerox Corporation: *See—*
Brach, Paul J.; and Six, Hugh A., 3,708,292.
Brach, Paul J.; and Lardon, Marcel A., 3,708,293.
Davies, Terence J., 3,708,286.
Goffe, William L., 3,708,287.
Lin, Luke C., 3,708,288.
Polit, Neil A., 3,708,374.
Reichart, Louis W., Jr., 3,707,947.
Starr, Arthur T.; Sewell, Brian C.; and Lewis, Roy F., 3,708,751.
Watson, Donald W., 3,708,368.

Yamahara, Takeshi; Kishimoto, Hiroshi; Nakamura, Shinji; Deguchi, Takashi; and Takamatsu, Shichiro, to Sumitomo Chemical Co., Ltd. Method for producing dichlorobutene. 3,708,548, Cl. 260-654.00h.

Yamamoto, Hiroshi, to Matsushita Electric Industrial Co., Ltd. Face steamer. 3,707,971, Cl. 128-368.000.

Yamamoto, Keisuke, to Matsushita Electric Industrial Co., Ltd. Vertical synchronizing system. 3,708,621, Cl. 178-69.5tv.

Yamamoto, Kozo, to Matsushita Electric Industrial Co., Ltd. Dual-use optical projection apparatus. 3,707,779, Cl. 35-9.00e.

Yamamoto, Takekazu: *See—*
Torri, Tatsumi; Kozakai, Asao; Yamamoto, Takekazu; and Nyunoya, Mizuo, 3,708,044.

Yannes, Harry: *See—*
Welsch, David Peter; and Yannes, Harry, 3,707,973.

Yao, Cheng, to Factory Mutual Research Corporation. System for fire protection using recirculation of combustion products. 3,708,015, Cl. 169-12.000.

Yao, Ying Luh, to International Business Machines Corporation. Circuit for eliminating spurious outputs due to interelectrode capacitance in driver IGFET circuits. 3,708,688, Cl. 307-205.000.

Yates, John S.: *See—*
Griffiths, William R.; Johnston, Donald E.; Yates, John S.; and Layer, Gerard E., 3,708,138.

Yatsenko, Vasilievich: *See—*
Kononenko, Vadim Grigorievich; Yatsenko, Vasilievich; Komnatny, Igor Pavlovich; Schenkochikhin, Serafim Vasilievich; Stelmakh, Viktor Alexeevich; Mazichenko, Stanislav Anisimovich; and Kudryavtsev, Valentin Semenovich, 3,707,896.

Yeakey, Jack A.: *See—*
Meraz, Daniel, Jr.; Simshauser, Anthony J.; Yeakey, Jack A.; and Carpenter, David W., 3,707,916.

Yindra, Leonard J.; and Klug, Joseph R., to American Hospital Supply Corporation. Power-operated pedestal table and safety clutch therefor. 3,707,930, Cl. 108-147.000.

Ymos-Metallwerke Wolf & Becker GmbH & Co.: *See—*
Schwab, Dittmar; and Schwab, Heinz, 3,707,863.

Yokotani, Hajime; Miyamoto, Masuo; and Murata, Tadakazu, to Takeda Chemical Industries, Ltd. Pentanedione derivatives. 3,708,540, Cl. 260-590.000.

Yoshimura, Susumu; and Sano, Reiji. Ionic conductive solid electrolyte. 3,708,424, Cl. 252-62.200.

Yoshinága, Eiichi; Takahashi, Yoshio; and Kado, Masaru, to Kumiai Chemical Industry Co., Ltd. Agricultural and horticultural granule formulation and methods for preparing the same and for using thereof. 3,708,573, Cl. 424-23.000.

Young, Robert Eric. Temperature measurement. 3,707,873, Cl. 73-362.00r.

Zaffaroni, Alejandro, to Alza Corporation. Imidazolyl prostaglandin compounds. 3,708,492, Cl. 260-309.000.

Zahnradfabrik Friedrichshafen Aktiengesellschaft: *See—*
Kuhnle, Willi; and Frei, Walter, 3,708,047.

Zattler, Kurt: *See—*
Engelsmann, Dieter; Kessler, Fritz; Mass, Dieter; and Zattler, Kurt, 3,707,904.

Zauderer, Bert, to General Electric Company. Thermionic cathodes for MHD generators. 3,708,704, Cl. 310-11.000.

Zebley, Donald Dane; and Cashion, Joseph Wayne, to United Merchants and Manufactures, Inc. Take-up device having a tension-derived compacting means. 3,707,996, Cl. 139-304.000.

Zeidler, Adolf; Fisher, Adolf; and Weiss, Guenther, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Herbicidal method. 3,708,277, Cl. 71-91.00.

Zeile, Karl: *See—*
Merz, Herbert; Freter, Kurt; and Zeile, Karl, 3,708,597.

Zernow, Louis; and Mottet, Arthur Louis, to Whittaker Corporation. Precision initiation coupler. 3,707,917, Cl. 102-70.000.

Ziegler, Bodo: *See—*
Blaich, Emil; Maier, Oskar; and Ziegler, Bodo, 3,708,347.

Ziegler, Carrell G.; and Hoffman, Albert H., to Dittmar and Penn Corporation. Stethoscope. 3,708,034, Cl. 181-24.000.

Zilahy, Zoltan E.: *See—*
Dato, Anthony L.; and Zilahy, Zoltan E., 3,708,051.

Zim-Stra Originals, Inc.: *See—*
Scarsella, Lydia, 3,707,729.

Zimprich, John W., to Modine Manufacturing Company. Heat exchanger. 3,708,012, Cl. 165-152.000.

Zoerb, Edward G., to Honeywell, Inc. Cooled temperature sensitive oscillator. 3,707,979, Cl. 137-81.500.

Zuech, Ernest A.: *See—*
Kittleman, Edmund T.; and Zuech, Ernest A., 3,708,551.

Zwart, Jack: *See—*
Duffty, Bryan; Golob, Theodore B.; Jasinski, Stanley C.; and Zwart, Jack, 3,708,000.

LIST OF PLANT PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 2ND DAY OF JANUARY, 1973

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Conard-Pyle Co., The: *See*—
Swim, Herbert C., and Weeks. 3,282.

Irwin Greenhouses, Inc.: *See*—
Irwin, James T. 3,285.

Irwin, James T., to Irwin Greenhouses, Inc. Kalancho plant. 3,285, 1–2–73, Cl. 68.

Swim, Herbert C., and O. L. Weeks, to The Conard-Pyle Co. Rose plant. 3,282, 1–2–73, Cl. 19.

Van Staaverem, Maurits C. Alstroemeria hybrid (yellow Tiger). 3,281, 1–2–73, Cl. 68.

Van Staaveren, Maurits C. Alstroemeria plant (canaria). 3,283, 1–2–73, Cl. 68.

Van Staaveren, Maurits C. Hybrid alstroemeria plant. 3,284, 1–2–73, Cl. 68.

Weeks, O. L.: *See*—
Swim, Herbert C., and Weeks. 3,282.

LIST OF DESIGN PATENTEES

Alippe, Douglas J., and F. A. Desisto, to J. C. Penney Co., Inc. Cosmetic display self-service counter. 225,708, 1–2–73, Cl. D6—146.

Ament, Herman. Seam ripper. 225,700, 1–2–73, Cl. D3—19.

Ament, Herman J. Seam ripper. 225,701, 1–2–73, Cl. D3—19.

Amerock Corp.: *See*—
Tegner, Raymond U. H. 225,722.

Anchor Hocking Corp.: *See*—
Hale, James W. 225,762.
Pettengill, Floyd E. 225,725.
Pettengill, Floyd E. 225,727.

Auergesellschaft GmbH: *See*—
Waldmann, Wilhelm. 225,732.

Auslander, Norman L., to Lander Co., Inc. Bottle. 225,726, 1–2–73, Cl. D9—115.

Baldwin, Phillip M., and W. E. Harlan. Trash receptacle. 225,771. 1–2–73, Cl. D49—30.

Binzer Thomas J., C. H. Schmitt, and P. H. Wooding, to General Electric Co. Portable microwave oven or similar article. 225,780, 1–2–73, Cl. D81—4.

Bixler, Loring C., D. F. Laley, E. R. Wiener, A. M. Davis, and W. S. McCormick, Jr., to International Business Machines Corp. Electronic data processing console unit. 225,741, 1–2–73, Cl. D26—5.

Blumcraft of Pittsburgh: *See*—
Horgan, William J., Jr. 225,734.

Boldt, Melvin H., D. P. Chuboff, and M. McCauley, to Zenith Radio Corp. Rectangular loudspeaker unit. 225,748, 1–2–73, Cl. D26—14.

Bowman, Hyman D. Vehicle floorboard cover or the like. 225,735, 1–2–73, Cl. D14—5.

Bradrick, Darlene V., and J. P. Lehne. Bottle. 225,719, 1–2–73, Cl. D9—35.

Broz, Jerry J. Track cleaning car. 225,760, 1–2–73, Cl. D34—15.

Brozen, Kenneth B. Wall mounted book and magazine shelf combination. 225,707, 1–2–73, Cl. D6—136.

Burt, Harold R.: *See*—
Catto, Kenneth A., and Burt. 225,749.

Carolina Enterprises, Inc.: *See*—
McIntosh, Lawrie G. 225,710.

Catto, Kenneth A., and H. R. Burt. Telephone answering device housing. 225,749, 1–2–73, Cl. D26—14.

Chuboff, David P.: *See*—
Boldt, Melvin H., Chuboff, and McCauley. 225,748.

Clairol Inc.: *See*—
Louise, John C. 225,731.
Louise, John C. 225,733.

Controlled Power Corp.: *See*—
Urquhart, Thomas N., Koltuniak, and Plantholt. 225,751.

Coon, James A., and E. Theobald; said Theobald assignor to said Coon. Flat hollow file. 225,720, 1–2–73, Cl. D8—90.

Cramer, Bernhard, and L. L. Lepoix, to International Standard Electric Corp. Data printer. 225,744, 1–2–73, Cl. D26—5.

Damon Corp.: *See*—
Munn, David E., Mello, and Maddestra. 225,761.

Dana, C. H., Co., Inc.: *See*—
Nichols, Harley E., Jr. 225,713.

De Baschmakoff, Francois, to Lip Societe Anonyme d'Horlogerie. Combined bracelet and rider for a watch case. 225,763, 1–2–73, Cl. D42—1.

Desisto, Frank A.: *See*—
Alippe, Douglas J., and Desisto. 225,708.

Development Industries, Inc.: *See*—
Winters, Paul T. 225,737.

Diamond International Corp.: *See*—
McCord, Robert C. 225,715.

Dracon Industries: *See*—
Mason, John R. 225,716.

Drieschman, Don F.: *See*—
Duecker, Willard J. 225,764.

Duecker, Willard J., assignor of a fractional part interest to Don F. Drieschman. Meat carving board. 225,764, 1–2–73, Cl. D44—1.

Duern, Gordon L., and D. S. Griffin, to Electrohome Ltd. Coffee table. 225,711, 1–2–73, Cl. D6—146.

Edinger, Ladislav L. Illuminating tongue depressor with replaceable blade. 225,784, 1–2–73, Cl. D83—12.

Ehrlichmann, Merlin W., to West Creek Co., Inc. Compact barbecue grill. 225,781, 1–2–73, Cl. D81—10.

Electrohome Ltd.: *See*—
Duern, Gordon L., and Griffin. 225,711.

Esquire, Inc.: *See*—
Hernandez, Jose A., and McReynolds, Jr. 225,768.

Federico, Joseph B., to Ford Industries, Inc. Housing for telephone answering device. 225,746, 1–2–73, Cl. D26—14.

Ford Industries, Inc.: *See*—
Federico, Joseph B. 225,746.

Fretwell, Richard D.: *See*—
Marsalka, Joseph P., and Fretwell. 225,750.

Fritsche, Richard K., and B. J. Niemann, to The Miami Margarine Co. Cup. 225,792, 1–2–73, Cl. D44—9.

Gamon-Calmet Industries, Inc.: *See*—
Seltzer, Daniel A. 225,743.

Geddings, Arthur J. Adjustable lounge. 225,704, 1–2–73, Cl. D6—37.

Geddis, David B., to Johnson & Johnson. Medication tray. 225,785, 1–2–73, Cl. D83—1.

Geiger, Gerald L. Apron. 225,695, 1–2–73, Cl. D2—227.

Geiger, Gerald L. Apron. 225,696, 1–2–73, Cl. D2—227.

General Electric Co.: *See*—
Binzer, Thomas J., Schmitt, and Wooding. 225,780.

Gillette Co., The: *See*—
Peterson, Ronald A. 225,730.

Goforth Brothers, Inc.: *See*—
Goforth, Samuel P., and J. A. 225,754.

Goforth, Joseph A.: *See*—
Goforth, Samuel P., and J. A. 225,754.

Goforth, Samuel P., and J. A., to Goforth Brothers, Inc. Passenger cab for amusement ride. 225,754, 1–2–73, Cl. D34—5.

Goodman, Robert M.: *See*—
Mango, Joseph R., and Goodman. 225,736.

Gorman, John F. Liquid spray dispenser. 225,718, 1–2–73, Cl. D9—8.

Griffin, Donald S.: *See*—
Duern, Gordon L., and Griffin. 225,711.

Grunert, Richard D.: *See*—
Stephens, James H., and Grunert. 225,756.

Gustin, Arnold J.: *See*—
Kelso, Francis, and Gustin. 225,770.

Haaheim, Lars H., and T. Schiefloe. Combined push button telephone and intercommunication unit. 225,745, 1–2–73, Cl. D26—14.

Haaheim, Lars H., and T. Schiefloe. Combination system of a dial telephone and an intercommunication system. 225,747.

Hale, John F., and F. J. Miller. Twirling baton. 225,755, 1–2–73. Cl. D26—14.

Hale, James W., to Anchor Hocking Corp. Tumbler or similar article. 225,762, 1–2–73, Cl. D36—8.

73, Cl. D34—5.

Hall, Richard B., to Sunbeam Corp. Upper housing for an electric hand mixer. 225,765–6, 1–2–73, Cl. D44—1.

Hallowell, Clifford A. Wire reel. 225,723, 1–2–73, Cl. D8—222.

Hannon, Charles N., to Warren W. Hannon. Conveyor. 225,774, 1–2–73, Cl. D55—1.

Hannon, Warren W.: *See*—
Hannon, Charles N. 225,774.

Harlan, William E.: *See*—
Baldwin, Philip M., and Harlan. 225,771.

Harris, William F., Jr. Base for outdoor lighting fixture. 225,769, 1–2–73, Cl. D48—31.

Hasbro Industries, Inc.: *See*—
Levine, Donald M. 225,757.

Hernandez, Jose A., and G. H. McReynolds, Jr., to Esquire, Inc. Light fixture. 225,768, 1–2–73, Cl. D48—20.

Holman, Clarence C. Rocking horse plaything. 225,759, 1–2–73, Cl. D34—15.

Horgan, William J., Jr., to Blumcraft of Pittsburgh. Door. 225,734, 1–2–73, Cl. D13—1.

Integrated Air Systems, Inc.: *See*—
Kelso, Francis, and Gustin. 225,770.

International Business Machines Corp.: *See*—
Bixler, Loring C., Laley, Wiener, Davis, and McCormick, Jr. 225,741.
Sims, John D. 225,742.

International Standard Electric Corp.: *See*—
Cramer, Bernhard, and Lepoix. 225,744.
Iwatsu Electric Co., Ltd.: *See*—
Kakii, Shunichiro. 225,777.
Johnson & Johnson: *See*—
Geddis, David B. 225,785.
Kakii, Shunichiro, to Iwatsu Electric Co., Ltd. Electro-static copying machine. 225,777, 1–2–73, Cl. D61—1.
Keeler Brass Co.: *See*—
Watt, William D., Jr. 225,717.
Watt, William D., Jr. 225,721.
Kelso, Francis, and A. J. Gustin, to Integrated Air Systems, Inc. Bell jar cleaner. 225,770, 1–2–73, Cl. D49—11.
Ketcham and McDougall, Inc.: *See*—
Macowski, William. 225,714.
King, William R., and S. J. Safft, to Sandoz-Wander, Inc. Mask strap. 225,782, 1–2–73, Cl. D83—1.
Koltuniak, Michael A.: *See*—
Urquhart, Thomas N., Koltuniak, and Plantholt. 225,751.
Kretz, Edward J., to Owens-Illinois, Inc. Bottle. 225,728, 1–2–73, Cl. D9—136.
Laley, Donald F.: *See*—
Bixler, Loring C., Laley, Wiener, Davis, and McCormick, Jr. 225,741.
Lander Co., Inc.: *See*—
Auslander, Norman L. 225,726.
Lehne, Janice P.: *See*—
Bradrick, Darlene V., and Lehne. 225,719.
Lepoix, Louis L.: *See*—
Cramer, Bernhard, and Lepoix. 225,744.
Levin, Monte, L., to Scovill Mfg. Co. Hair drying and styling comb. 225,786, 1–2–73, Cl. D86—8.
Levin, Monte L., to Scovill Mfg. Co. Kitchen blender base. 225,787, 1–2–73, Cl. D89—1.
Levine, Donald M., to Hasbro Industries, Inc. Toy bank. 225,757, 1–2–73, Cl. D34—11.
Levine, Linda E., and D. A. Zippel. Stuffed pillow or similar article. 225,698, 1–2–73, Cl. D3—9.
Levine, Linda E., and D. A. Zippel. Pillow or similar article. 225,699, 1–2–73, Cl. D3—9.
Lip Societe Anonyme d'Horlogerie: *See*—
De Baschmakoff, Francois. 225,763.
Louis, Josephine R. Combined paper towel holder and radio. 225,775, 1–2–73, Cl. D56—4.
Louise, John C., to Clairol Inc. Dispenser cover for a pressurized container. 225,731, 1–2–73, Cl. D9—258.
Louise, John C., to Clairol Inc. Dispensing cover for a pressurized container. 225,733, 1–2–73, Cl. D9—258.
Macowski, William, to Ketcham and McDougall, Inc. Letter opener. 225,714, 1–2–73, Cl. D8—61.
Mango, Joseph R., and R. M. Goodman, to Sears, Roebuck and Co. Hose nozzle. 225,736, 1–2–73, Cl. D23—37.
Marsalka, Joseph P., and R. D. Fretwell. Acoustic coupler. 225,750, 1–2–73 Cl. D26—14.
Mason, John R., to Dracon Industries. Jig block for hand-held shears. 225,716, 1–2–73, Cl. D8—71.
McCollum, Robert H. Fishing rod bracket. 225,706, 1–2–73, Cl. D6—125.
McCord, Robert C., to Diamond International Corp. Vacuum cup lifter for shell eggs. 225,715, 1–2–73, Cl. D8—71.
McDonald, Ronald J. Table or the like. 225,712, 1–2–73, Cl. D6—177.
McIntosh, Lawrie G., to Carolina Enterprises, Inc. Table. 225,710, 1–2–73, Cl. D6—146.
McNair, Samuel L., to The Songrand Corp. Hydrotherapy unit. 225,783, 1–2–73, Cl. D83—1.
McReynolds, Glen H., Jr.: *See*—
Hernandez, Jose A., and McReynolds, Jr. 225,768.
Mello, Thomas M.: *See*—
Munn, David E., Mello, and Maddestra. 225,761.
Mencimer, Myrone. Display stand for wig blocks. 225,752, 1–2–72. Cl. D6—28.
Miami Margarine Co., The: *See*—
Fritsche, Richard K., and Niemann. 225,792.
Miller, Anthony S., Jr. Rack for displaying merchandise. 225,703, 1–2–73, Cl. D6—28.
Miller, Frederick J.: *See*—
Hale, John F., and Miller 225,755.
Moranduzzo, Dario. Christmas ornament. 225,753, 1–2–73, Cl. D29—1.
Munn, David E., T. M. Mello, R. Maddestra, to Damon Corp. Vehicle toy. 225,761, 1–2–73, Cl. D34—15.
Nast, Robert. Transparent photograph album page. 225,791, 1–2–73, Cl. D97—1.
Nichols, Harley E., Jr., to C. H. Dana Co., Inc. Tool for applying animal identification tag. 225,713, 1–2–73, Cl. D8—14.
Niemann, Bernard J.: *See*—
Fritsche, Richard K., and Niemann. 225,792.
Owens-Corning Fiberglas Corp.: *See*—
Seymour, Merritt W. 225,739.
Owens-Illinois, Inc.: *See*—
Kretz, Edward J. 225,728.
Strand, Gordon A. 225,724.
Pace, Don, to Pacific Handy Cutter, Inc. Check stand divider. 225,709, 1–2–73, Cl. D6—191.
Pacific Handy Cutter, Inc.: *See*—
Pace, Don. 225,709.
Peasley, Curtiss M. Opaque projector. 225,778, 1–2–73, Cl. D61—1.
Peham, Engelbert J., to Peham Plastics, Inc. Hat. 225,697, 1–2–73, Cl. D2—258.
Peham Plastics, Inc.: *See*—
Peham, Engelbert J. 225,697.
Penney, J. C., Co., Inc.: *See*—
Alippe, Douglas J., and Desisto. 225,708.
Peterson, Ronald A., to The Gillette Co. Combined jar and cap. 225,730, 1–2–73, Cl. D9—153.
Pettengill, Floyd E., to Anchor Hocking Corp. Bottle or similar article. 225,725, 1–2–73, Cl. D9—100.
Pettengill, Floyd E., to Anchor Hocking Corp. Bottle or similar article. 225,727, 1–2–73, Cl. D9—118.
Proper, Clarence W. Spinning wheel. 225,758, 1–2–73, Cl. D34—15.
Rite Autotronics Corp.: *See*—
Schwartz, Edwin L. 225,738.
Rohrbach, Bernd, Electric razor. 225,788–90, 1–2–73, Cl. D95—3.
Safft, Stuart J.: *See*—
King, William R., and Safft. 225,782.
Sandoz-Wander, Inc.: *See*—
King, William R., and Safft. 225,782.
Schiefloe, Tore: *See*—
Haaheim, Lars H., and Schiefloe. 225,745.
Haaheim, Lars H., and Schiefloe. 225,747.
Schmitt, Charles H.: *See*—
Binzer, Thomas J., Schmitt, and Wooding. 225,780.
Schwartz, Edwin L., to Rite Autotronics Corp. Air cleaner cover. 225,738, 1–2–73, Cl. D23—149.
Schwartz, Ira W., to Shulton, Inc. Bottle. 225,729, 1–2–73, Cl. D9—147.
Scovill Mfg. Co.: *See*—
Levin, Monte L. 225,786.
Levin, Monte L. 225,787.
Sears, Roebuck and Co.: *See*—
Mango, Joseph R., and Goodman. 225,736.
Seltzer, Daniel A., to Gamon-Calmet Industries, Inc. Remote visual readout device. 225,743, 1–2–73, Cl. D26—5.
Seymour, Merritt W., to Owens-Corning Fiberglas Corp. Combination bathtub and shower stall. 225,739, 1–2–73, Cl. D23—49.
Shulton, Inc.: *See*—
Schwartz, Ira W. 225,729.
Siegel, William J. Illuminated magnifier unit. 225,776, 1–2–73, Cl. D57—1.
Sims, John D., to International Business Machines Corp. Data keyboard console. 225,742, 1–2–73, Cl. D26—5.
Songrand Corp., The: *See*—
McNair, Samuel L. 225,783.
Stephens, James H., and R. D. Grunert. Golf tool. 225,756, 1–2–73, Cl. D34—5.
Stillinger, Larry L. Combined trash container and support therefor. 225,772, 1–2–73, Cl. D49—34.
Strand, Gordon A., to Owens-Illinois, Inc. Bottle. 225,724, 1–2–73, Cl. D9—39.
Sunbeam Corp.: *See*—
Hall, Richard B. 225,765.
Hall, Richard B. 225,766.
Tampa Stereo Center, Inc.: *See*—
Viviano, Thomas R., Troy, and Ginn. 225,779.
Tegner, Raymond U. H., to Amerock Corp. Entry handle. 225,722, 1–2–73, Cl. D8—162.
Theobald, Elwin: *See*—
Coon, James A., and Theobald. 225,720.
Thompson, Alan. Electrical connector housing. 225,740, 1–2–73, Cl. D26—1.
Torrey, Frank R. Chair. 225,705, 1–2–73, Cl. D6—56.
Troy, John C.: *See*—
Viviano, Thomas R., Troy, and Ginn. 225,779.
Uhrmann, Carl J. Plate. 225,767, 1–2–73, Cl. D44—15.
Urquhart, Thomas N., M. A. Koltuniak, and R. G. Plantholt, to Controlled Power Corp. Alternating to direct current converter. 225,751, 1–2–73, Cl. D26—15.
Viviano, Thomas R., J. C. Troy, and R. Ginn, to Tampa Stereo Center, Inc. Display rack. 225,779, 1–2–73, Cl. D80—9.
Waldmann, Wilhelm, to Auergesellschaft GmbH. Incandescent mantle package. 225,732, 1–2–73, Cl. D9—177.
Watt, William D. Jr., to Keeler Brass Co. Furniture pull. 225,717. 1–2–73, Cl. D8—158.
Watt, William D., Jr., to Keeler Brass Co. Drawer pull. 225,721, 1–2–73, Cl. D8—159.
Welker, James C. Combined table and lamp. 225,702, 1–2–73, Cl. D6—4.
West Creek Co., Inc.: *See*—
Ehrlichmann, Merlin W. 225,781.
Westling, Lester L. Dietary calorie totalizer. 225,773, 1–2–73, Cl. D52—6.
Wiener, Edward R.: *See*—
Bixler, Loring C., Laley, Wiener, Davis, and McCormick, Jr. 225,741.
Winters, Paul T., to Development Industries, Inc. Portable commode. 225,737, 1–2–73, Cl. D23—48.
Zenith Radio Corp.: *See*—
Boldt, Melvin H., Chuboff, and McCauley. 225,748.
Zippel, Deborah A.: *See*—
Levine, Linda E., and Zippel. 225,698.
Levine, Linda E., and Zippel. 225,699.

CLASSIFICATION OF PATENTS

ISSUED JANUARY 2, 1973

NOTE.—First number, class; second number, subclass; third number, patent number

CLASS 2
88 3,707,729
161A 3,707,730

CLASS 3
21 3,707,731

CLASS 4
57P 3,707,733
164 3,707,732

CLASS 5
82 3,707,734
348 3,707,735

CLASS 8
21C 3,708,257
21 3,708,258
41R 3,708,259
111 3,708,260
116.3 3,708,261
139 3,708,262

CLASS 9
8.3R 3,707,736

CLASS 13
1 3,708,599
18 3,708,601
27 3,708,600

CLASS 15
1.7 3,707,737
21A 3,707,738
176 3,707,739
236 3,707,740
250.42 3,707,741

CLASS 21
54A 3,708,263

CLASS 23
230R 3,708,264
254 3,708,265
283 3,708,266

CLASS 24
86B 3,707,742
252R 3,707,743
265B 3,707,744

CLASS 28
1.3 3,707,745
72.2F 3,707,746

CLASS 29
95 3,707,747
95.1 3,707,748
113R 3,707,749
132 3,707,751
3,707,752
148.4C 3,707,753
156.8B 3,707,750
156.8H 3,707,754
182.5 3,708,268
200B 3,707,755
203D 3,707,756
213 3,707,757
235 3,707,758
401 3,707,759
413 3,707,760
446 3,707,761
494 3,707,762
498 3,707,763
527.6 3,707,764
578 3,707,765
588 3,707,766
593 3,707,767

CLASS 30
166 3,707,768

CLASS 32
19 3,707,771

CLASS 33
373 3,707,772

CLASS 34
1 3,707,773
10 3,707,775
14 3,707,774
45 3,707,776
48 3,707,777

CLASS 35
9B 3,707,778
9E 3,707,779
9F 3,707,780
11 3,707,781
17 3,707,782
31R 3,707,783
35C 3,707,785
42.5 3,707,786

CLASS 36
2.5R 3,707,787
11.5 3,707,784

CLASS 37
142A 3,707,788

CLASS 40
34 3,707,790
124.1 3,707,791
125M 3,707,789
219 3,707,792

CLASS 42
1G 3,707,793
1J 3,707,794
16 3,707,795
70C 3,707,796
74 3,707,797

CLASS 43
3 3,707,798
8 3,707,799
17 3,707,801
53.5 3,707,800

CLASS 46
1K 3,707,802
126 3,707,803
202 3,707,804
3,707,805

CLASS 47
34.13 3,707,806
57.6 3,707,807

CLASS 48
202 3,708,270
215 3,708,269

CLASS 51
178 3,707,808
215H 3,707,809
346 3,707,810

CLASS 52
23 3,707,811
27 3,707,812
79 3,707,813
185 3,707,814
213 3,707,815
3,707,816
220 3,707,818
221 3,707,817
319 3,707,819
436 3,707,820
748 3,707,821

CLASS 53
112R 3,707,823
188 3,707,824
282 3,707,825
331.5 3,707,822
384 3,707,826

CLASS 54
46 3,707,827

CLASS 55
138 3,707,828
239 3,707,829
410 3,707,830
483 3,707,831
486 3,707,832

CLASS 56
104 3,707,833
208 3,707,834
400.01 3,707,835

CLASS 57
1UN 3,707,836
157F 3,707,837
157R 3,707,838
161 3,707,839

CLASS 58
58 3,707,840
82R 3,707,841
144 3,707,842

CLASS 60
36 3,707,843
52B 3,707,844
54.6R 3,707,845

CLASS 61
11 3,707,847
3,707,848
45R 3,707,846

CLASS 62
40 3,707,849
45 3,707,850
125 3,707,851

CLASS 64
32F 3,707,852

CLASS 65
12 3,708,271
59 3,708,272
120 3,708,273
307 3,708,274

CLASS 66
84 3,707,853
125R 3,707,854

CLASS 68
6 3,707,855
12R 3,707,856
3,707,857
143 3,707,858
202 3,707,859

CLASS 70
58 3,707,860
74 3,707,861
150 3,707,862
364R 3,707,863

CLASS 71
1 3,708,275
27 3,708,276
91 3,708,277
100 3,708,278

CLASS 72
60 3,707,864
340 3,707,865
379 3,708,060
407 3,707,866
410 3,707,867

CLASS 73
4 3,707,868
28 3,707,869
38 3,707,870
57 3,707,871
231R 3,707,872
362R 3,707,873
398R 3,707,874
423A 3,707,875

CLASS 74
3.52 3,707,876
10.52 3,707,877
230.16 3,707,883
242.3 3,707,882
372 3,707,884
524 3,707,885
547 3,707,886
552 3,707,887
796 3,707,888
845 3,707,889
868 3,707,890
869 3,707,891
873 3,707,892

CLASS 75
10V 3,708,279
124 3,708,280
3,708,281
200 3,708,282
3,708,283
208CS 3,708,284
221 3,708,285

CLASS 81
58.1 3,707,893
125 3,707,894

CLASS 83
1.03 3,708,602
438 3,707,999
483 3,707,997
623 3,707,895
639 3,707,896

CLASS 84
1.03 3,708,604
1.1 3,708,605
1.11 3,708,603
479 3,707,897

CLASS 85
3R 3,707,898

CLASS 89
14C 3,707,899
26 3,707,900

CLASS 91
306 3,707,881
391 3,707,880

CLASS 92
48 3,707,879
164 3,707,878

CLASS 94
9 3,707,901

CLASS 95
4.5 3,707,902
11.5R 3,707,903
31R 3,707,904

CLASS 96
1 3,708,286
1.3 3,708,287
1.4 3,708,288
1.5 3,708,290
3,708,291
3,708,292
3,708,293
1.6 3,708,294
33 3,708,296
36.2 3,708,295
48 3,708,297
64 3,708,298
66.3 3,708,299
67 3,708,289
73 3,708,300
91R 3,708,301
107 3,708,302
3,708,303
114.1 3,708,304
115P 3,708,305

CLASS 99
2R 3,708,306
50 3,708,002
57 3,708,307
81 3,708,308
94 3,708,309
98 3,708,310
100P 3,708,311
116 3,707,770
194 3,708,312
233.11 3,708,003
289 3,707,905
372 3,707,906
408 3,707,907
460 3,707,769

CLASS 100
47 3,707,909
207 3,707,908

CLASS 101
93C 3,707,910
269 3,707,911

CLASS 102
7.4 3,707,912
18 3,707,913
20 3,707,914
42C 3,707,915
49.7 3,707,916
70 3,707,917
90 3,707,918

CLASS 104
1R 3,707,926
99 3,707,921
114 3,707,922
137 3,707,923
148LM 3,707,924
167 3,707,925

CLASS 105
199CB 3,707,927
210 3,707,920
3,707,928
377 3,707,919

CLASS 106
1 3,708,313
38.27 3,708,314
39R 3,708,315
53 3,708,316
56 3,708,317
193M 3,708,318
253 3,708,319

CLASS 108
51 3,707,929
147 3,707,930

CLASS 110
8C 3,707,931

CLASS 113
1R 3,707,933
119 3,707,932

CLASS 114
.5R 3,707,934
39 3,707,935
74R 3,707,937
665P 3,707,936

CLASS 115
1R 3,707,938
35 3,707,939

CLASS 116
67 3,707,940
124.4 3,707,941

CLASS 117
3.3 3,708,320
17 3,708,321
31 3,708,322
33.5CM 3,708,336
36.7 3,708,323
47R 3,708,324
3,708,329
61 3,708,325
62 3,708,326
76T 3,708,327
93.31 3,708,328
94 3,708,330
95 3,708,331
122H 3,708,332
140A 3,708,333
141 3,708,334
226 3,708,335

CLASS 118
7 3,707,943
50 3,707,944
234 3,707,945
410 3,707,946
637 3,707,947

CLASS 119
4 3,707,948
18 3,707,949

CLASS 123
32EA 3,707,950
3,707,951
73AD 3,707,955
97B 3,707,952
117A 3,707,954
117R 3,707,953

CLASS 125
11TP 3,707,956

CLASS 127
46R 3,708,337

CLASS 128
1R 3,707,957
3,707,958
2.06A 3,707,959
2.06E 3,707,960
33 3,707,961
63 3,707,962
77 3,707,963
132D 3,707,964
191R 3,707,965
212 3,707,966
213 3,707,967
218PA 3,707,968
287 3,707,969
305 3,707,970
349R 3,707,972
368 3,707,971
419P 3,707,974
533 3,707,973

CLASS 131
9 3,707,975
36 3,707,976

CLASS 135
1A 3,707,977

CLASS 136
27 3,708,338
111 3,708,340
120FC 3,708,341
121 3,708,342
133 3,708,343
137 3,708,344
153 3,708,339
160 3,708,345
161 3,708,346
162 3,708,347
170 3,708,348
175 3,708,349

CLASS 137
2 3,707,978
81.5 3,707,979
84 3,707,980
115 3,707,981
119 3,707,982
173 3,707,983
312 3,707,984
495 3,707,985
525.1 3,707,986
543 3,707,987
596.12 3,707,988
608 3,707,989
615 3,707,990
625.11 3,707,991
625.65 3,707,992
636 3,707,993
637.4 3,707,994

CLASS 139
1 3,707,995
304 3,707,996

CLASS 141
93 3,707,998

CLASS 144
3D 3,708,000
208B 3,708,001

CLASS 148
6.2 3,708,350
6.35 3,708,351
11.5A 3,708,352
12.3 3,708,353
32 3,708,355
128 3,708,354

CLASS 149
2 3,708,356
3,708,357
7 3,708,358
19 3,708,359

CLASS 150
1.5B 3,708,004
30 3,708,005

CLASS 152
153 3,708,006
361 3,708,007

CLASS 156
3 3,708,360
72 3,708,361
82 3,708,362
148 3,708,363
181 3,708,365
209 3,708,366
267 3,708,367
300 3,708,368
322 3,708,369
331 3,708,370
351 3,708,372
363 3,708,371
380 3,708,373
521 3,708,374
552 3,708,375
580 3,708,376
582 3,708,377

CLASS 157
13 3,708,008

CLASS 160
84V 3,708,009

CLASS 161
6 3,708,378
36 3,708,379
43 3,708,380
44 3,708,381
48 3,708,382
57 3,708,383
65 3,708,384
69 3,708,385
165 3,708,386
168 3,708,387

247 3,708,388

CLASS 162

306 3,708,389
374 3,708,390

CLASS 164

273R 3,708,010

CLASS 165

22 3,708,011
152 3,708,012

CLASS 166

276 3,708,013
307 3,708,014

CLASS 169

12 3,708,015

CLASS 171

575 3,708,727

CLASS 172

6 3,708,016
239 3,708,017
313 3,708,018
470 3,708,019

CLASS 173

7 3,708,020
49 3,708,021

CLASS 174

15C 3,708,606
48 3,708,607
60 3,708,628
70R 3,708,608
72B 3,708,609
3,708,610
84C 3,708,611
142 3,708,612

CLASS 175

16 3,708,022
19 3,708,023
52 3,708,024

CLASS 176

4 3,708,391
16 3,708,392
40 3,708,393

CLASS 177

1 3,708,025
60 3,708,026
210 3,708,027

CLASS 178

5.4HE 3,708,613
3,708,614
5.4ST 3,708,615
5.4R 3,708,616
7.2 3,708,617
7.3R 3,708,620
7.82 3,708,622
7.9 3,708,618
7.92 3,708,619
69.5TV 3,708,621

CLASS 179

15BT 3,708,623
15BY 3,708,625
15A 3,708,624
18F 3,708,627
18J 3,708,626
37 3,708,629
81A 3,708,630
100.1TD 3,708,631
100.1C 3,708,632
100.2R 3,708,633
175 3,708,634

CLASS 180

65R 3,708,028
79 3,708,029
79.2R 3,708,030
110 3,708,031
114 3,708,032

CLASS 181

.5MW 3,708,033
1 3,707,942
24 3,708,034
32R 3,708,035
33H 3,708,036

CLASS 182

2 3,708,037
150 3,708,038
214 3,708,080

CLASS 188

62 3,708,039
72.2 3,708,040
72.9 3,708,041
73.2 3,708,042
73.3 3,708,043
326 3,708,044

CLASS 190

41Z 3,708,045

CLASS 192

2 3,708,046
12C 3,708,047
83 3,708,048

CLASS 194

84 3,708,049

CLASS 195

28N 3,708,394
29 3,708,395
31R 3,708,396
3,708,397
37 3,708,398
47 3,708,399
127 3,708,400

CLASS 197

1R 3,708,050

CLASS 198

19 3,708,051
24 3,708,052
30 3,708,053
33AC 3,708,054
34 3,708,055
36 3,708,056
38 3,708,057
184 3,708,058
189 3,708,059

CLASS 200

5R 3,708,635
6A 3,708,636
67B 3,708,637
144B 3,708,638
148R 3,708,639
167A 3,708,640
168C 3,708,642
168E 3,708,641
170A 3,708,643

CLASS 202

173 3,708,401

CLASS 204

15 3,708,403
16 3,708,404
37R 3,708,405
38S 3,708,406
56 3,708,407
96 3,708,408
159.14 3,708,413
164 3,708,409
193 3,708,410
195M 3,708,411
195P 3,708,412
247 3,708,414
257 3,708,415
284 3,708,416
286 3,708,417
298 3,708,418
299 3,708,402
328 3,708,419

CLASS 206

45.34 3,708,061
56DF 3,708,062

CLASS 208

156 3,708,420
244R 3,708,421

CLASS 209

3 3,708,063
73 3,708,064
3,708,065
80.5 3,708,066
211 3,708,067

CLASS 210

140 3,708,068
181 3,708,069
242 3,708,070
321 3,708,071
332 3,708,072

CLASS 211

47 3,708,073
151 3,708,074

CLASS 213

22 3,708,075
67R 3,708,076

CLASS 214

16.4A 3,708,077
23 3,708,078
338 3,708,079
450 3,708,081

CLASS 215

1C 3,708,082
41 3,708,083

CLASS 217

26.5 3,708,084

CLASS 219

7.5 3,708,644
10.41 3,708,645
56 3,708,646
60A 3,708,647
109 3,708,648
212 3,708,649
364 3,708,650
365 3,708,651
505 3,708,652

CLASS 220

18 3,708,085
20 3,708,086

CLASS 221

110 3,708,087

CLASS 222

70 3,708,088
396 3,708,089
402.22 3,708,090
541 3,708,091
567 3,708,092

CLASS 224

42.45A 3,708,093

CLASS 225

103 3,708,094

CLASS 227

126 3,708,095
130 3,708,096
136 3,708,097

CLASS 228

15 3,708,098
29 3,708,099
47 3,708,100

CLASS 229

14C 3,708,101
31FS 3,708,102
35 3,708,103
44CB 3,708,108
51TC 3,708,109
51TS 3,708,104
62 3,708,106
69 3,708,107
75 3,708,105

CLASS 233

26 3,708,110
32 3,708,111

CLASS 235

58P 3,708,112
61B 3,708,653
61M 3,708,113
61.11A 3,708,654
61.11E 3,708,655
61.12R 3,708,656
103 3,708,114
151.12 3,708,658
156 3,708,657
197 3,708,659

CLASS 236

47 3,708,115

CLASS 238

10E 3,708,116
14 3,708,117

CLASS 239

1 3,708,118
11 3,708,119
66 3,708,120
102 3,708,121
260.55R 3,708,474
317 3,708,122
415 3,708,123
426 3,708,124
428.5 3,708,125
590.5 3,708,126

CLASS 241

32 3,708,127
101R 3,708,128
189 3,708,129
256 3,708,130

CLASS 242

3 3,708,131
7.23 3,708,132
18A 3,708,133
18R 3,708,134
55.19A 3,708,135
68.3 3,708,136
219 3,708,137

CLASS 244

3.13 3,708,139
16 3,708,138
50 3,708,140

CLASS 246

393 3,708,660

CLASS 248

42 3,708,141
49 3,708,142
165 3,708,143
167 3,708,144
361 3,708,145

CLASS 249

1 3,708,146
99 3,708,147
111 3,708,148

CLASS 250

49.5ZC 3,708,661
55 3,708,662
59 3,708,663
61.5 3,708,664
71T 3,708,665
83.3H 3,708,667
202 3,708,668
205 3,708,669
206 3,708,670
209 3,708,671
3,708,672
213VT 3,708,673
217F 3,708,674
218 3,708,675
219DR 3,708,677
219D 3,708,678
219Q 3,708,676
223B 3,708,680
223R 3,708,679
231R 3,708,681

CLASS 251

9 3,708,149
31 3,708,150

CLASS 252

49.6 3,708,422
62.2 3,708,424
62.61 3,708,423
62.9 3,708,438
89 3,708,425
90 3,708,426
99 3,708,427
109 3,708,428
156 3,708,364
3,708,429
188 3,708,430
188.3 3,708,431
301.1R 3,708,433
301.1S 3,708,432
364 3,708,508
435 3,708,434
527 3,708,436
544 3,708,435
555 3,708,437

CLASS 254

133 3,708,151
190R 3,708,152

CLASS 256

25 3,708,153

CLASS 259

2 3,708,154

CLASS 260

2R 3,708,439
2.3 3,708,440
2.5AV 3,708,443
2.5F 3,708,442
2.5N 3,708,444
2.5P 3,708,441
4R 3,708,445
17.4GC 3,708,446
3,708,447
17.45T 3,708,466
23.7M 3,708,470
24 3,708,448
3,708,449
26 3,708,450
29.6NR 3,708,452
29.8 3,708,451
30.2 3,708,453
37N 3,708,456
37R 3,708,454
3,708,455
41C 3,708,457
65 3,708,458
3,708,459
78L 3,708,460
79 3,708,461
80.71 3,708,462
83.3H 3,708,666
92.1 3,708,463
93.1 3,708,556
93.7 3,708,464
3,708,465
174 3,708,596
185 3,708,467
207 3,708,468
211.5R 3,708,469
239BF 3,708,471
239.3A 3,708,472
239.3R 3,708,473
240C 3,708,475
240K 3,708,597
243C 3,708,476
3,708,477
3,708,478
3,708,479
3,708,480
247.2B 3,708,481
247.7C 3,708,482
248CS 3,708,483
250A 3,708,484
254 3,708,485
281 3,708,486
293.63 3,708,488
294.8K 3,708,487
295.5R 3,708,489
306.8F 3,708,490
306.8R 3,708,491
309 3,708,492
309.7 3,708,493
3,708,494
3,708,495
3,708,496
326.8 3,708,497
333 3,708,498
336 3,708,499
340.5 3,708,500
3,708,501
340.7 3,708,502
340.9 3,708,503
345.2 3,708,504
345.5 3,708,505
348.5L 3,708,507
348.51 3,708,506
396R 3,708,509
397.1 3,708,510
397.5 3,708,511
412.8 3,708,512
413 3,708,513
455R 3,708,514
464 3,708,515
3,708,516
465H 3,708,517
469 3,708,518
473S 3,708,519
3,708,520
476C 3,708,521
485G 3,708,522
486B 3,708,524
486D 3,708,523
488CD 3,708,525
501.12 3,708,526
501.15 3,708,527
514P 3,708,528
515P 3,708,530
515R 3,708,529
523A 3,708,531
525 3,708,532
531C 3,708,533
535R 3,708,534
543P 3,708,535
555A 3,708,536
556A 3,708,538
556F 3,708,537
585B 3,708,539
590 3,708,540
3,708,541
607A 3,708,542
609R 3,708,543
618R 3,708,544
622R 3,708,545
645 3,708,546
648R 3,708,547
654H 3,708,548
668R 3,708,549
680R 3,708,550
683D 3,708,551
683R 3,708,552
683.47 3,708,553
848 3,708,554
878R 3,708,555
940 3,708,557
945 3,708,558

CLASS 261

24 3,708,155

CLASS 263

6R 3,708,157
41 3,708,156

CLASS 264

.5 3,708,559
13 3,708,560
22 3,708,561
30 3,708,562
45 3,708,563
86 3,708,564
88 3,708,565
171 3,708,566
331 3,708,567

CLASS 266

34LM 3,708,159
34PT 3,708,158

CLASS 270

53 3,708,160

CLASS 271

9 3,708,161
47 3,708,162
62R 3,708,165

CLASS 272

57B 3,708,163
58 3,708,167
67 3,708,164
69 3,708,166

CLASS 273

1R 3,708,168
3,708,169
65A 3,708,170
130R 3,708,171
164 3,708,172
176A 3,708,173
187R 3,708,174
196 3,708,175

CLASS 274

4F 3,708,176

CLASS 277

80 3,708,177

CLASS 279

81 3,708,178

CLASS 280

150AB 3,708,179
3,708,181
150R 3,708,180
289 3,708,182
483 3,708,183

CLASS 281

33 3,708,184

CLASS 285

42 3,708,185
341 3,708,186
373 3,708,187

CLASS 287

20P 3,708,188
100 3,708,189

CLASS 289

13 3,708,190

CLASS 290

37 3,708,682
3,708,683

CLASS 292

1 3,708,191
261 3,708,192
280 3,708,193

CLASS 293

1 3,708,194
72 3,708,195

CLASS 294

26 3,708,196
67E 3,708,197

CLASS 296

23MC 3,708,199
23R 3,708,198
3,708,200

CLASS 297

214 3,708,201
239 3,708,202
346 3,708,203
355 3,708,205
440 3,708,204

CLASS 299

5 3,708,206

CLASS 302

24 3,708,207
28 3,708,208
52 3,708,209
59 3,708,210

CLASS 303

6C 3,708,211
7 3,708,212
21AF 3,708,213
21F 3,708,214

CLASS 307

35 3,708,684
104 3,708,685
149 3,708,686
202 3,708,687
205 3,708,688
3,708,689
221R 3,708,690
225B 3,708,691
228 3,708,692
229 3,708,693
237 3,708,694
3,708,695
252B 3,708,696
270 3,708,697
289 3,708,698
304 3,708,699
309 3,708,700

CLASS 308

35 3,708,215
73 3,708,216

CLASS 310

8.1 3,708,701
8.2 3,708,702
10 3,708,703
11 3,708,704
52 3,708,705
216 3,708,706
258 3,708,707

CLASS 312

209 3,708,709

CLASS 313

108A 3,708,708
213 3,708,710
325 3,708,711

CLASS 315

10 3,708,712
12 3,708,713
13C 3,708,714
3,708,715
30 3,708,716
169TV 3,708,717

CLASS 317

11B 3,708,718
13C 3,708,720
13R 3,708,719
18B 3,708,721
22 3,708,724
31 3,708,723
120 3,708,725
148.5B 3,708,726

230 3,708,728
3,708,729
234R 3,708,722
3,708,730
235R 3,708,731
3,708,732
262A 3,708,733

CLASS 318

212 3,708,734
564 3,708,735
632 3,708,736
636 3,708,737

CLASS 320

9 3,708,738

CLASS 321

8R 3,708,740
15 3,708,741
3,708,742
21 3,708,739

CLASS 323

22SC 3,708,743
60 3,708,744

CLASS 324

56 3,708,745
77D 3,708,746
96 3,708,747
127 3,708,749
178 3,708,750

CLASS 325

38B 3,708,751
38 3,708,748
3,708,752

CLASS 328

162 3,708,753

CLASS 329

144 3,708,763

CLASS 330

1A 3,708,754
28 3,708,755
29 3,708,756

CLASS 331

57 3,708,757
94.5 3,708,758
3,708,759
107R 3,708,760
3,708,761
108B 3,708,762

CLASS 332

5 3,708,764
9R 3,708,765

CLASS 333

18 3,708,766
24 3,708,767

CLASS 335

128 3,708,768
132 3,708,769
154 3,708,770
176 3,708,771
210 3,708,772
254 3,708,773

CLASS 336

84 3,708,774
155 3,708,775

CLASS 337

66 3,708,776

CLASS 338

183 3,708,777

CLASS 339

75P 3,708,778
99R 3,708,779
177R 3,708,781
276 3,708,780

CLASS 340

66 3,708,782
146.01D 3,708,783
147 3,708,784
172.5 3,708,785
3,708,786
173R 3,708,787
3,708,788
174BC 3,708,789
174.1G 3,708,790
248A 3,708,791
253R 3,708,792
324A 3,708,793

CLASS 343

7.4 3,708,794
708 3,708,795
754 3,708,796

CLASS 346

108 3,708,797
140 3,708,798

CLASS 350

3.5 3,708,217
61 3,708,218
150 3,708,219
160R 3,708,220
189 3,708,221
303 3,708,222
310 3,708,223

CLASS 351

62 3,708,224
160 3,708,225

CLASS 352

109 3,708,226

CLASS 356

83 3,708,227
87 3,708,228
108 3,708,229
125 3,708,230
152 3,708,231
172 3,708,232
244 3,708,233

CLASS 401

57 3,708,235
60 3,708,236
216 3,708,234

CLASS 408

108 3,708,237
112 3,708,238

CLASS 415

1 3,708,239
36 3,708,240
51 3,708,247
80 3,708,241
217 3,708,242

CLASS 416

134 3,708,243
196 3,708,244

CLASS 417

13 3,708,245
48 3,708,248
50 3,708,246
203 3,708,249
221 3,708,250
356 3,708,251

CLASS 418

195 3,708,252

CLASS 423

5 3,708,267
6 3,708,568
301 3,708,570
413 3,708,571
574 3,708,569

CLASS 424

12 3,708,572
23 3,708,573
44 3,708,574
94 3,708,575
115 3,708,576
121 3,708,577
141 3,708,578
180 3,708,579
200 3,708,580
203 3,708,581
208 3,708,582
251 3,708,584
3,708,585
269 3,708,592
273 3,708,598
274 3,708,593
309 3,708,586
312 3,708,583
317 3,708,587
3,708,588
3,708,589
324 3,708,594
327 3,708,590
3,708,591
3,708,595

CLASS 425

155 3,708,253
235 3,708,254
287 3,708,255
376 3,708,256

CLASSIFICATION OF DESIGNS

D 2— 227 225,695
225,696
258 225,697
D 3— 9 225,698
225,699
19 225,700
225,701
D 6— 4 225,702
28 225,703
225,752
37 225,704
56 225,705
125 225,706
136 225,707
146 225,708
225,710
225,711
177 225,712
191 225,709
D 8— 14 225,713
61 225,714
71 225,715
225,716
90 225,720
158 225,717
159 225,721
162 225,722
222 225,723
D 9— 8 225,718
35 225,719
39 225,724
100 225,725
115 225,726
118 225,727
136 225,728
147 225,729
153 225,730
177 225,732
258 225,731
225,733
D13— 1 225,734
D14— 5 225,735
D23— 37 225,736
48 225,737
49 225,739
149 225,738
D26— 1 225,740
5 225,741
225,742
225,743
225,744
14 225,745
225,746
225,747
225,748
225,749
225,750
15 225,751
D29— 1 225,753
D34— 5 225,754
225,755
225,756
11 225,757
15 225,758
225,759
225,760
225,761
D36— 8 225,762
D42— 1 225,763
D44— 225,764
225,765
225,766
9 225,792
15 225,767
D48— 20 225,768
31 225,769
D49— 11 225,770
30 225,771
34 225,772
D52— 6 225,773
D55— 1 225,774
D56— 4 225,775
D57— 1 225,776
D61— 225,777
225,778
D80— 9 225,779
D81— 4 225,780
10 225,781
D83— 1 225,782
225,783
225,785
12 225,784
D86— 8 225,786
D89— 1 225,787
D95— 3 225,788
225,789
225,790
D97— 1 225,791

CLASSIFICATION OF PLANTS

P. — 19 3,282
P. — 68 3,281
P. — 3,283
P. — 3,284
P. — 3,285

GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

(U.S. States, Territories and Armed Forces, the Commonwealth of Puerto Rico, and the Canal Zone)

Alabama 1
Alaska 2
American Samoa 3
Arizona 4
Arkansas 5
California 6
Canal Zone 7
Colorado 8
Connecticut 9
Delaware 10
District of Columbia 11
Florida 12
Georgia 13
Guam 14
Hawaii 15
Idaho 16
Illinois 17
Indiana 18
Iowa 19
Kansas 20
Kentucky 21
Louisiana 22
Maine 23
Maryland 24
Massachusetts 25
Michigan 26
Minnesota 27
Mississippi 28
Missouri 29
Montana 30
Nebraska 31
Nevada 32
New Hampshire 33
New Jersey 34
New Mexico 35
New York 36
North Carolina 37
North Dakota 38
Ohio 39
Oklahoma 40
Oregon 41
Pennsylvania 42
Puerto Rico 43
Rhode Island 44
South Carolina 45
South Dakota 46
Tennessee 47
Texas 48
Utah 49
Vermont 50
Virginia 51
Virgin Islands 52
Washington 53
West Virginia 54
Wisconsin 55
Wyoming 56
U.S. Air Force 57
U.S. Army 58
U.S. Navy 59

(First number in listing denotes location according to above key. Refer to patent number in body of the Official Gazette to obtain details as to inventor name, location, etc.)

PATENTS

1 : 3,708,612
4 : 3,707,765
3,707,899
3,708,005
3,708,187
3,708,403
3,708,619
3,708,689
3,708,756
3,708,761
5 : 3,707,784
6 : 3,707,731
3,707,735
3,707,737
3,707,742
3,707,762
3,707,778
3,707,788
3,707,802
3,707,804
3,707,805
3,707,807
3,707,823
3,707,845
3,707,850
3,707,878
3,707,913
3,707,915
3,707,916
3,707,917
3,707,926
3,707,936
3,707,940
3,707,953
3,707,963
3,707,967
3,707,969
3,707,998
3,708,021
3,708,053
3,708,087
3,708,111
3,708,116
3,708,122
3,708,138
3,708,161
3,708,166
3,708,168
3,708,172
3,708,175
3,708,176
3,708,181
3,708,191
3,708,194
3,708,199
3,708,200
3,708,204
3,708,208
3,708,223
3,708,231
3,708,251
3,708,270
3,708,286
3,708,306
3,708,330
3,708,345
3,708,359
3,708,370
3,708,381
3,708,391
3,708,401
3,708,407
3,708,419
3,708,428
3,708,430
3,708,431
3,708,437
3,708,443
3,708,446
3,708,459
3,708,492
3,708,517
3,708,539
3,708,546
3,708,547
3,708,563
3,708,566
3,708,570
3,708,571
3,708,572
3,708,590
3,708,623
3,708,624
3,708,642
3,708,656
3,708,666
3,708,669
3,708,680
3,708,682
3,708,686
3,708,693
3,708,694
3,708,708
3,708,713
3,708,716
3,708,729
3,708,737
3,708,748
3,708,760
3,708,780
3,708,781
3,708,783
8 : 3,707,738
3,708,016
3,708,074
3,708,136
3,708,163
3,708,325
3,708,648
3,708,755
3,708,786
9 : 3,707,757
3,707,760
3,707,848
3,707,889
3,707,890
3,707,891
3,707,976
3,707,991
3,707,992
3,708,090
3,708,095
3,708,114
3,708,220
3,708,237
3,708,354
3,708,398
3,708,399
3,708,439
3,708,440
3,708,458
3,708,472
3,708,498
3,708,584
3,708,609
3,708,631
3,708,673
3,708,709
3,708,731
3,708,752
3,708,797
10 : 3,707,746
3,708,133
3,708,232
3,708,233
3,708,313
3,708,384
3,708,533
3,708,588
3,708,734
12 : 3,707,793
3,707,939
3,707,948
3,708,003
3,708,022
3,708,050
3,708,057
3,708,083
3,708,353
3,708,450
13 : 3,707,736
3,707,937
3,708,065
16 : 3,707,999
3,708,137
17 : 3,707,733
3,707,739
3,707,751
3,707,756
3,707,791
3,707,792
3,707,803
3,707,814
3,707,818
3,707,833
3,707,887
3,707,888
3,707,898
3,707,927
3,707,964
3,707,965
3,707,966
3,707,972
3,707,982
3,707,984
3,708,049
3,708,055
3,708,059
3,708,072
3,708,075
3,708,076
3,708,105
3,708,106
3,708,115
3,708,118
3,708,135
3,708,145
3,708,153
3,708,174
3,708,188
3,708,190
3,708,212
3,708,225
3,708,240
3,708,241
3,708,265
3,708,269
3,708,281
3,708,312
3,708,351
3,708,368
3,708,374
3,708,376
3,708,410
3,708,417
3,708,435
3,708,436
3,708,502
3,708,513
3,708,530
3,708,560
3,708,581
3,708,585
3,708,593
3,708,610
3,708,617
3,708,618
3,708,635
3,708,636
3,708,637
3,708,643
3,708,649
3,708,665
3,708,679
3,708,687
3,708,724
18 : 3,707,732
3,707,776
3,707,880
3,707,883
3,707,919
3,707,921
3,707,962
3,707,985
3,708,008
3,708,042
3,708,081
3,708,131
3,708,180
3,708,243
3,708,480
3,708,615
3,708,720
19 : 3,708,019
3,708,046
3,708,164
3,708,604
3,708,746
20 : 3,707,773
3,708,018
3,708,066
3,708,155
3,708,334
21 : 3,708,254
3,708,568
22 : 3,707,771
3,708,038
3,708,070
3,708,400
23 : 3,708,195
24 : 3,707,798
3,707,871
3,707,912
3,708,121
3,708,318
3,708,413
3,708,432
3,708,438
3,708,578
3,708,608
3,708,723
25 : 3,707,740
3,707,744
3,707,770
3,707,794
3,707,945
3,708,015
3,708,026
3,708,033
3,708,071
3,708,130
3,708,173
3,708,217
3,708,248
3,708,255
3,708,261

3,708,307
3,708,331
3,708,332
3,708,346
3,708,404
3,708,411
3,708,445
3,708,462
3,708,476
3,708,658
3,708,671
3,708,672
3,708,678
3,708,681
3,708,697
3,708,754
3,708,785
26 : 3,707,734
3,707,748
3,707,787
3,707,856
3,707,857
3,707,882
3,708,004
3,708,031
3,708,041
3,708,082
3,708,104
3,708,117
3,708,156
3,708,160
3,708,185
3,708,189
3,708,202
3,708,203
3,708,214
3,708,218
3,708,324
3,708,380
3,708,385
3,708,441
3,708,466
3,708,483
3,708,526
3,708,543
3,708,592
3,708,654
3,708,717
3,708,721
27 : 3,707,808
3,707,867
3,707,895
3,707,934
3,707,935
3,707,949
3,707,979
3,707,981
3,708,027
3,708,068
3,708,086
3,708,101
3,708,143
3,708,207
3,708,309
3,708,341
3,708,378
3,708,412
3,708,491
3,708,651
3,708,683

3,708,743
3,708,779
28 : 3,707,786
3,708,703
29 : 3,707,905
3,707,968
3,707,978
3,707,993
3,707,994
3,707,997
3,708,170
3,708,209
3,708,211
3,708,238
3,708,456
3,708,582
3,708,677
30 : 3,707,827
3,708,196
31 : 3,707,781
3,707,925
3,708,141
3,708,583
32 : 3,707,893
33 : 3,708,179
3,708,249
3,708,268
34 : 3,707,821
3,707,843
3,707,847
3,707,860
3,707,872
3,707,897
3,707,956
3,707,973
3,708,051
3,708,058
3,708,061
3,708,092
3,708,112
3,708,236
3,708,253
3,708,275
3,708,285
3,708,296
3,708,326
3,708,339
3,708,357
3,708,358
3,708,388
3,708,397
3,708,406
3,708,418
3,708,425
3,708,448
3,708,449
3,708,454
3,708,479
3,708,484
3,708,490
3,708,500
3,708,501
3,708,505
3,708,510
3,708,528
3,708,535

3,708,541
3,708,549
3,708,555
3,708,569
3,708,577
3,708,580
3,708,587
3,708,589
3,708,595
3,708,598
3,708,606
3,708,632
3,708,638
3,708,641
3,708,712
3,708,738
3,708,784
35 : 3,707,745
3,708,415
36 : 3,707,729
3,707,741
3,707,753
3,707,759
3,707,782
3,707,783
3,707,789
3,707,812
3,707,813
3,707,829
3,707,832
3,707,835
3,707,842
3,707,854
3,707,869
3,707,942
3,707,944
3,707,947
3,707,955
3,707,957
3,707,960
3,707,986
3,707,987
3,708,084
3,708,094
3,708,107
3,708,108
3,708,109
3,708,129
3,708,171
3,708,182
3,708,184
3,708,193
3,708,206
3,708,215
3,708,219
3,708,226
3,708,227
3,708,230
3,708,259
3,708,263
3,708,271
3,708,272
3,708,287
3,708,288
3,708,292
3,708,293
3,708,300
3,708,301
3,708,302

3,708,303
3,708,304
3,708,310
3,708,375
3,708,402
3,708,467
3,708,473
3,708,520
3,708,562
3,708,564
3,708,603
3,708,620
3,708,627
3,708,663
3,708,670
3,708,676
3,708,688
3,708,695
3,708,715
3,708,739
3,708,742
3,708,758
3,708,766
3,708,788
3,708,791
3,708,798
37 : 3,707,825
3,707,837
3,707,885
3,708,078
3,708,093
3,708,327
3,708,343
3,708,741
3,708,775
39 : 3,707,749
3,707,817
3,707,844
3,707,862
3,707,874
3,707,875
3,707,894
3,707,903
3,707,910
3,707,923
3,707,929
3,707,988
3,708,007
3,708,024
3,708,064
3,708,079
3,708,123
3,708,146
3,708,158
3,708,162
3,708,221
3,708,274
3,708,308
3,708,321
3,708,323
3,708,350
3,708,367
3,708,386
3,708,434
3,708,447
3,708,463

3,708,522
3,708,553
3,708,629
3,708,645
3,708,647
3,708,696
3,708,710
3,708,726
3,708,745
40 : 3,707,914
3,707,983
3,708,014
3,708,103
3,708,124
3,708,142
3,708,245
3,708,319
3,708,416
3,708,421
3,708,457
3,708,551
41 : 3,707,958
3,707,977
3,708,355
3,708,691
3,708,749
3,708,768
42 : 3,707,730
3,707,819
3,707,828
3,707,920
3,707,928
3,707,932
3,707,933
3,707,974
3,708,028
3,708,034
3,708,039
3,708,052
3,708,088
3,708,091
3,708,099
3,708,149
3,708,159
3,708,279
3,708,284
3,708,344
3,708,352
3,708,356
3,708,379
3,708,387
3,708,422
3,708,509
3,708,525
3,708,545
3,708,550
3,708,579
3,708,591
3,708,611
3,708,622
3,708,655
3,708,690
3,708,704
3,708,722
3,708,744
3,708,750

43 : 3,707,799
3,708,601
44 : 3,708,096
3,708,097
3,708,134
3,708,224
45 : 3,707,907
3,707,996
3,708,085
3,708,169
46 : 3,707,801
47 : 3,707,763
3,707,772
3,708,012
3,708,045
3,708,073
3,708,198
3,708,392
3,708,433
3,708,451
3,708,668
3,708,792
48 : 3,707,785
3,707,790
3,707,797
3,707,800
3,707,851
3,707,868
3,707,901
3,708,013
3,708,089
3,708,183
3,708,360
3,708,372
3,708,531
3,708,607
3,708,660
49 : 3,707,764
3,707,938
3,708,077
3,708,125
3,708,127
50 : 3,708,382
51 : 3,707,836
3,707,859
3,707,911
3,707,918
3,708,139
3,708,140
3,708,247
3,708,273
3,708,674
53 : 3,707,761
3,707,952
3,708,393
3,708,508
3,708,633
3,708,640
54 : 3,708,495
3,708,657
55 : 3,707,752
3,707,855
3,707,930
3,707,990
3,708,006
3,708,040
3,708,069
3,708,080
3,708,152
3,708,283
3,708,333
3,708,349
3,708,361
3,708,366
3,708,343
3,708,389
3,708,390
3,708,537
3,708,664
3,708,685
3,708,725
3,708,727

Design Patents

6 : 225,706
225,709
225,716
225,718
225,719
225,720
225,738
225,764
225,770
225,773
225,775
8 : 225,737
225,752
225,782
11 : 225,695
225,696
12 : 225,779
16 : 225,723
17 : 225,722
225,736
225,748
225,765
225,766
18 : 225,772
20 : 225,702
225,783
21 : 225,780
24 : 225,705
225,776
25 : 225,761
225,778
26 : 225,715
225,717
225,721
225,751
27 : 225,697
225,758
225,781
29 : 225,771
34 : 225,703
225,714
225,731
225,733
225,759
225,785
36 : 225,700
225,701
225,707
225,708
225,712
225,726
225,729
225,730
225,746
225,784
225,786
225,787
225,791
37 : 225,735
225,741
225,742
225,754
225,769
39 : 225,724
225,725
225,727
225,728
225,739
225,743
225,750
225,755
225,762
225,767
225,792
40 : 225,774
41 : 225,749
42 : 225,734
225,756
225,760
44 : 225,757
45 : 225,704
48 : 225,698
225,699
225,768
50 : 225,713
53 : 225,745
225,747

Plant Patents

6 : 3,282
48 : 3,285

U. S. DEPARTMENT OF COMMERCE
Peter G. Peterson, Secretary

PATENT OFFICE
Robert Gottschalk, Commissioner